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ABSTRACT

Reported is a survey of state institutions for the mentally handicapped in which information about hearing imparied mentally handicapped HI/MH persons was solicited. Existing data on hearing impairment and mental retardation, its diagnosis and related programing are reviewed briefly. It is explained that 158 of 212 surveyed institutions (75 percent) provided complete or nearly complete responses. Survey results in the following areas are analyzed: prevalence of HI/MH persons in institutions for the retarded, procedures for diagnosing and evaluating HI/MH residents, characteristics of HI/MH residents, services available to HI/MH residents, and the operation of selected programs for the HI/MH. Conclusions such as the following are drawn: approximately 9 percent of the institutionalized MH population was HI; only 48 percent of the facilities had a distinct program for the HI/MH population; in classifying residents as HI, 32 percent of institutions relied primarily on puretone results, 22 percent relied primarily on functional need, and 26 percent considered both puretone results and functional need, while the remaining institutions used various multiple criteria. Recommendations are made to facilitate programing for HI/MH populations. (GW)

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The Hearing Impaired Mentally/Retarded: A Survey of State Institutions for the Retarded

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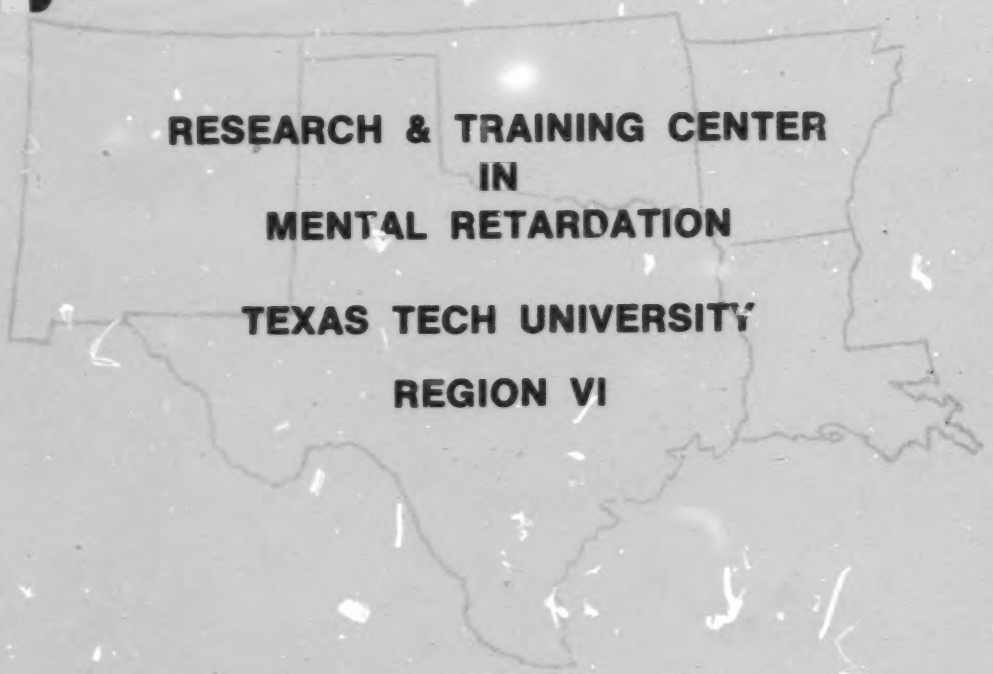

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FOREWORD

The Research and Training Center in Mental Retardation at Texas Tech University is one of several facilities supported in part by grants from the Research and Training Centers Division of the Social and Rehabilitation Service in HEW. The Center's major purpose is to initiate applied research aimed toward alleviating disability, reducing dependency, and formulating more effective rehabilitation service delivery systems. The Center also seeks ways to share its research findings with and participate in the training of mental retardation and vocational rehabilitation personnel in the states of Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

One project completed in 1974 has special significance for rehabilitators, especially in view of the increased concern with extending rehabilitation services to the severely and multiply handicapped. The Research and Training Center conducted a mail survey of state institutions for the mentally retarded in order to gain much-needed information about the extent of hearing impairment among the mentally retarded and the current status of programs geared toward the special needs of the Hearing Impaired/Mentally Retarded child and adult.

Major responsibility for conducting the survey rested with A. Clark Brannon, as part of his work toward a doctorate in education with an emphasis on deafness. The project was largely funded through Research and Training Center monies and guided by R & T Center staff. The present report, while drawing on Dr. Brannon's dissertation, omits parts of his analysis and offers new analyses in attempt to highlight the findings of the survey most relevant to practitioners and most suggestive of current strengths and weaknesses in services for the Hearing Impaired/Mentally Retarded. The reader who desires a quick overview of the study, its findings, and its implications is referred to the concluding section of the monograph.

Special thanks go to Cathy Lorenzen for her careful preparation of the typed manuscript; Phillip Davis for his contributions to the data analysis; Patrice Costello Fleming for her contribution to the recommendations section; and last but not least, to the respondents who devoted time and care to completing the survey.

WHO ARE THE HEARING IMPAIRED/MENTALLY RETARDED?

One of many severe multiple disabilities which has received long overdue attention recently is the combination of hearing impairment and mental retardation. The Hearing Impaired/Mentally Retarded (HI/MR) person has two disabilities which may produce more severe problems than would be expected if we simply added the effects of hearing impairment and mental retardation. In other words, the whole may be greater than the sum of its parts. The HI/MR person may not benefit from programs for either the hearing impaired or the mentally retarded. Due to the compound effect of multiple disability, HI/MR children and adults pose special management problems for the facilities which serve them. They may require special attention and distinct programs geared to their unique needs. Perhaps the most serious problem for the HI/MR person is a deficiency in communication skills.

It is important to recognize that there is much variation among HI/MR individuals. First, their intellectual functioning varies from the profound to the mild levels of retardation. Secondly, they may have the ability to hear oral speech, or they may be totally deaf. In this project, a distinction was made between the Hard of Hearing/Mentally Retarded and the Deaf/Mentally Retarded. A Hard of Hearing/Mentally Retarded (HOH/MR) person was defined functionally as a mentally retarded person who has a hearing loss but can use residual hearing to understand speech (with a hearing aid if necessary). The HOH/MR person may use oral receptive and expressive language as the primary means of communication. The Deaf/Mentally Retarded (DEAF/MR) person was defined functionally as a mentally retarded person with a severe hearing loss who cannot hear or understand speech even with a hearing aid. The DEAF/MR person may use some form of manual receptive and expressive language as the primary means of communication. Although the DEAF/MR person clearly has the greater disability, both the HOH/MR and the DEAF/MR fall in the broader category of the Hearing Impaired/Mentally Retarded.

There are two general types of special educational services for the HI/MR individual. First, he or she may be placed in special classes within residential schools for the deaf. However, schools for the deaf have traditionally rejected or neglected the severely mentally retarded person (Hall & Talkington, 1972). This has happened largely because residential schools for the deaf have aimed their programs at the hearing impaired student with normal intelligence. As a study of mentally retarded stu-

dents in schools for the deaf indicated, such schools have stressed academic excellence and have maintained a formal, traditional educational program which is not always appropriate for HI/MR students (Anderson & Stevens, 1970). In fact, the history of deaf education has been, in part, a struggle to dispell the myth that deaf people are mentally deficient (MacPherson, 1952).

The second option for the HI/MR person is specialized educational programs established within residential facilities for the mentally retarded. However, such special programs are few in number and have developed only recently. Most state schools for the retarded are not well-prepared to meet the needs of the hearing impaired because they do not have staff members trained in hearing impairment.

As a result, many HI/MR people with severe disabilities are living in residential facilities--either for the deaf or for the mentally retarded--but are not receiving special services. For instance, Darnell (1971) noted that within the fifteen state schools for the retarded in New York, there were no special programs for the deaf retarded. Healey and Sonies (1973), in an American Speech and Hearing Association pamphlet publicizing a Rehabilitation Services Administration grant to study the HI/MR, stated that some deaf mentally retarded students are not placed in any type of educational program. The need for services for the HI/MR population is clear, but in order to design those services, we need a great deal more information about the characteristics of the population and the types of programs which they need and fail to receive.

WHAT DO WE ALREADY KNOW ABOUT THE HEARING IMPAIRED/MENTALLY RETARDED?

The American Association on Mental Deficiency (1973) estimated that the prevalence of mental retardation among the school age population in the United States is 2-3%. The percentage of these children who are hearing impaired has, to date, not been accurately determined (Rittmanic, 1972). In fact, the Bibliography of World Literature on Mental Retardation (Heber et al., 1963), which contains over 16,000 citations of research and scholarly writing on mental retardation published between 1940 and 1963, contains a scant sixty references concerned with audiology, hearing, and/or hearing impairment. A great deal of material has been published in the last decade, most of which has been compiled in bibliography by Hirshoren and Lloyd (1972). However, many of the articles on the Hearing Impaired/Mentally Retarded focus on audiology--an important topic, but not one which fully answers our questions about planning for the needs of HI/MR individuals. We will very briefly review the current state of knowledge in the areas of prevalence, diagnosis, and programming.

The Prevalence of Hearing Impairment and Mental Retardation

Perhaps the necessary starting point in planning for the needs of the HI/MR population is a description of the size and characteristics of the population. Rittmanic (1972), in a report to the first national conference on issues in the education of the HI/MR person detailed this need:

> Presently, there is no study of incidence and prevalence of children with multiple handicaps that has been conducted on a national basis using carefully standardized criteria. Therefore, it seems that one of the most critical needs is to plan a nationally coordinated survey which would be executed in such a manner as to provide a reliable and valid assessment of the incidence of deafness among the mentally retarded (i.e., in institutions for the mentally retarded).

The information available to date suggests the scope of the problem but is not comprehensive. For example, Craig and Craig (1973) reported that 17% of the children in schools for the deaf were mentally retarded. Lloyd and Moore (1972) found that 15% of the children in facilities for the mentally

retarded had a significant hearing loss. Schlanger (1961) reported on the basis of a mail survey that the prevalence of hearing loss among the institutionalized retarded ranged from 0% to over 50%. Rittmanic (1971) reviewed the reports of 27 surveys of hearing loss which indicated a variance of 8% to 56% in the incidence of hearing impairment among the mentally retarded. Part of the reason for such dramatic variation among studies is the lack of standard nomenclature and procedures for identifying hearing impairment and mental retardation (Stewart, 1972). While we can conclude that the incidence of hearing impairment is probably higher among the mentally retarded than it is among public school children (Johnston & Farrell, 1954), the HI/MR population remains loosely defined. Moreover, few studies to date have attempted more than a simple head count; we know very little about the characteristics of people who fall in the HI/MR disability category.

We do, however, have every reason to believe that the incidence of multiple disabilities has increased in recent years. The effects of the 1964-1965 rubella epidemic are acutely visible to professionals in the fields of health, education, and social welfare. There are few special schools for the deaf, blind, and retarded which have not felt a "rubella bulge." Vernon (1969) reported that post-rubella children number 20,000 to 30,000. In addition to causing hearing impairment, rubella often results in brain damage which underlies mental retardation. Children who are hearing impaired and mentally retarded due to rubella often have additional disabilities which make their needs especially acute.

Diagnosis

A large part of the problem in determining the prevalence of hearing impairment combined with mental retardation can be traced to difficulties in diagnosis. For one thing, many deaf children have been incorrectly diagnosed as mentally retarded. Darnell (1971) observed that due to the enormous language disability posed by deafness, many deaf persons have been diagnosed as severely or profoundly retarded when their actual potential was near or even above normal. It is not difficult to find cases of hearing impaired individuals incorrectly placed in institutions for the mentally retarded who were subsequently discharged when it was discovered that they had normal intellectual ability. Vernon and Kilcullen (1972) identified three major causes of misdiagnosis. First, the tests used to measure intelligence may have been inappropriate. Verbal intelligence

tests are clearly inappropriate with deaf subjects--namely, because they actually measure language disability due to severe hearing loss rather than intelligence. Second, retardation among the hearing impaired may be confused with other difficulties such as brain damage, autism, and aphasia, which are known to be common in deaf populations (Vernon, 1969). Finally, because deaf persons often retain enough sound perception to respond to certain noises, they may be assumed not to be deaf. Their failure in educational settings is then sometimes interpreted as due to lack of intelligence rather than due to severe hearing loss. All of these problems help to account for the variability in the number of people classified as HI/MR.

The HI/MR person may require special diagnostics. Especially when an individual is profoundly or severely retarded, it is extremely difficult to test for the separate effects of hearing impairment and retardation. Lloyd and Cox (1972) argued that individuals referred for an audiological assessment after screening should receive, at minimum, pure-tone air and bone conduction audiometry, acoustic impedance measurements, and speech audiometry. They suggested that the severely and profoundly retarded may have to be evaluated for a longer test period and may require special audiological techniques. A step toward improved diagnosis was taken by Bricker, Bricker, and Larsen (1968) with the introduction of operant audiology. This technique, using reinforcement and shaping procedures, permits the audiologist to explore more fully the abilities of the difficult-to-test child. Although such innovations will certainly help in gaining accurate assessments of both hearing impairment and mental retardation, the fact remains that diagnostic procedures are not all they should be at present. The more the diagnostician knows about hearing impairment and mental retardation, and the more he or she relies on sophisticated assessment tools, the more accurate will be our knowledge of the Hearing Impaired/Mentally Retarded population.

Programming

Assuming that an individual is correctly diagnosed as mentally retarded and hearing impaired, there is still the problem of deciding on an appropriate placement. Should he or she be considered primarily a mentally retarded child and educated as such, or should hearing impairment be given priority? Anderson and Stevens (1969) argued that it becomes virtually impossible to know where the effects of hearing impairment end and the effects of mental retardation begin. Educators of the mentally retarded may not be able to cope

with the communication barrier of deafness, while educators of the deaf may throw up their hands if pupils do not progress as quickly as expected. In response to these problems, Costello (1966) called for:

1. Programs to educate academic teachers of the deaf retarded.
2. Programs to educate vocational teachers of the deaf retarded.
3. Counselors trained in both areas.
4. A national center to provide for the needs of the deaf retarded.

Apparently very few curricula and methods have been developed specifically for the HI/MR student. Some (e.g., Monaghan, 1964) have argued that a truly individualized approach is essential if the HI/MR student is to progress; others (e.g., Hairston, 1972) have advocated a heavy reliance on instructional media. The shortage of appropriate programs and materials is easy to explain: few professional or paraprofessional workers have had the benefit of training in both hearing impairment and mental retardation (Stewart, 1972).

Sellin (1964) argued that dual training was not necessary, if experienced teachers of the mentally retarded are hired to work with slow learners in schools for the deaf and trained teachers of the deaf are employed in special programs in facilities for the mentally retarded. However, Anderson and Stevens (1969) indicated that teachers tend to look at the HI/MR resident through their own particular professional frame of reference rather than responding to a whole person who is multiply disabled. Vernon and Kilcullen (1972) suggested that many cases of misdiagnosis could be avoided if professionals were more thoroughly trained in multiple disabilities. Presumably, educational programs would also improve if they were engineered by professionals well-grounded in both education of the hearing impaired and education of the retarded. Perhaps we do not yet know precisely what content should be included in such training, but most observers have argued that we cannot serve the Hearing Impaired/Mentally Retarded successfully until teachers are well-grounded in mental retardation, hearing impairment, and the unique difficulties of the person with both disabilities.

WHAT WAS THE PURPOSE OF THE HI/MR SURVEY?

In view of the current state of knowledge about HI/MR children and adults, it was decided that a major survey of state institutions for the mentally retarded would provide part of the base of information which is necessary for program planning. *The first purpose of the study was to determine the number of HI/MR residents in state institutions for the retarded.* Since the time when many of the prevalence studies previously discussed were conducted, institutional reporting procedures have improved greatly. Thus, it was felt that a new "head count" would be valuable.

More importantly, most previous studies, other than studies in specific institutions, have not attempted to gather data on such characteristics of the HI/MR population as age and degree of retardation. Thus, *the second purpose of the study was to provide preliminary descriptive information about the characteristics of the Hearing Impaired/Mentally Retarded.* Although it was not possible to overcome the difficulties created by varying definitions and diagnostic procedures, the HI/MR Survey requested information about levels of retardation and offered functional definitions of the deaf and hard-of-hearing in order to differentiate between these two major types of hearing impairment. It also sought information about the types of screening and diagnostic procedures used in institutions for the mentally retarded. Thus, *the third purpose of the study was to determine how the HI/MR resident is identified and evaluated.*

The review of available literature indicated that knowledge of training programs for the HI/MR resident is sorely lacking. *The fourth purpose of the study was to determine what special equipment, programming, and staff are currently available to the HI/MR resident.* With this knowledge in hand, professionals and administrators will be in a better position to meet program and manpower needs for the institutionalized hearing impaired retarded.

HOW WAS THE HI/MR SURVEY CONDUCTED?

Information about the prevalence of hearing impairment and mental retardation, characteristics of the HI/MR population, procedures for diagnosing and evaluating the HI/MR resident, and thrusts in training and education was sought through a mail questionnaire. The original goal was to obtain information from all residential institutions for the mentally retarded in the United States. Two sources provided the basis for a complete mailing list: The Directory of the National Association of Superintendents of Public Residential Facilities for the Mentally Retarded and membership listings for the National Association of Private Residential Facilities for the Mentally Retarded.

Copies of an experimental version of the survey were given to representatives of major organizations concerned with hearing impairment and/or mental retardation so that they could suggest improvements in the survey and eventually endorse the project: (1) the American Speech and Hearing Association; (2) the Deafness Research and Training Center at New York University; (3) the National Association of Coordinators of State Programs for the Mentally Retarded; (4) The National Association of Private Residential Facilities for the Mentally Retarded; (5) the National Association of Superintendents of Public Residential Facilities for the Mentally Retarded.

After the advice of these groups was incorporated into a revised questionnaire, the research staff had further consultation with the staffs of the American Speech and Hearing Association and the Deafness Research and Training Center at New York University. The final result was the HI/MR Survey reproduced in Appendix A. It is a rather comprehensive (indeed, lengthy) questionnaire which reflects the concerns of key professionals in the fields of hearing impairment and mental retardation.

The survey consists of ten sections which call for descriptions of: (1) the facility and the respondent; (2) the institution population; (3) procedures used in diagnosis and evaluation; (4) the hard-of-hearing population; (5) services for the hard-of-hearing; (6) the deaf retarded population; (7) services for the deaf retarded; (8) staff training and qualifications; (9) special equipment for the HI/MR; and (10) perceived strengths and weaknesses of programs for the HI/MR resident.

Originally, information concerning HI/MR populations was to be solicited from both state and private facilities. However, few of the private facilities for the retarded which received a preliminary questionnaire responded--in part, because many of them were probably small foster homes

and group homes without HI/MR residents. As a result, the survey focused exclusively on public facilities for the mentally retarded.

Two copies of the HI/MR Survey were sent to each of the 212 state facilities for the mentally retarded listed in the yearly directory of the National Association of Superintendents of Public Residential Facilities for the Mentally Retarded. Approximately two months after the initial mailing, a follow-up letter accompanied by the survey was sent to facilities which had not yet responded. The follow-up procedure was repeated once again. Responses were accepted for a period of nine months beginning in July, 1973, and ending in April, 1974.

Of the 212 state facilities which received the HI/MR survey, 181 or 85% responded in some fashion or another. However, some facilities simply provided letters of explanation indicating either that they did not serve HI/MR residents or that for one reason or another they could not complete the survey. A few of these letters did provide population figures. In all, 156 facilities returned the HI/MR survey more or less complete--representing a useable return rate of 75%. Not all of these facilities completed every section of the survey fully, but in view of the length of the survey, the response rate was encouraging. It, along with several comments offered spontaneously by respondents, indicated a concern with the multiple disability of hearing impairment and mental retardation and an interest in the findings of the study. A higher response rate is difficult to achieve in mail survey research.

For our present purposes, we must bear in mind that the findings of the study are not reflective of all public facilities for the mentally retarded. The safest assumption is probably that non-responding facilities had fewer HI/MR residents and fewer programs developed for them. The present study may yield slightly higher estimates of the incidence of hearing impairment in the institutionalized retarded and may present a somewhat optimistic picture of current services. In reporting findings, we will concentrate on the facilities which provided complete information. We will also attempt to indicate when response rates to specific questions fell significantly below 158 and treat such results with caution, especially when it appears that respondents had difficulty providing accurate information.

HOW PREVALENT ARE HEARING IMPAIRED/MENTALLY RETARDED PERSONS IN INSTITUTIONS FOR THE RETARDED?

One of the major purposes of the HI/MR Survey was to provide an estimate of the incidence of hearing impairment in the institutionalized retarded population. The task of arriving at such an estimate, however, is fraught with problems. Three such problems stand out:

1. *Varying definitions of hearing impairment.* Although responding institutions were offered functional definitions of HOH/MR and the DEAF/MR persons, institutions undoubtedly relied on their own criteria of hearing impairment in arriving at incidence figures. It is clear that a variety of more and less sophisticated diagnostic procedures are in use.
2. *Approximate census figures.* Institutional reporting procedures also vary widely. The figures provided to the research team were often explicitly labelled approximate census figures. We have no way of estimating their validity or determining the extent to which reporting practices differ from facility to facility.
3. *Incomplete survey data.* Many facilities did not provide estimates of all three populations in question--total institutional population, HOH/MR population, and DEAF/MR population. Some provided figures for the hearing impaired as a combined group; some provided figures on the number of HOH/MR and DEAF/MR residents but did not provide total population figures; and still others were unable to provide any figures at all.

In order to combat these problems--to the extent that they can be combatted--we made two decisions. First, we focused our attention on the facilities which provided all three relevant figures. Of the 212 institutions originally surveyed, 111 (52%) provided estimates of total, HOH/MR, and DEAF/MR populations. Although it is impossible to determine the extent to which these institutions might differ from institutions which did not respond or which responded incompletely, the 111 facilities offered the best data for estimating prevalence. Secondly, in order to gauge the variability of estimates from facility to facility--whether it is attributable to varying definitions of hearing impairment or the approximate nature of the figures provided--we decided to report not only overall figures but variations in incidence across facilities.

How prevalent is hearing impairment among the institutionalized retarded? The 111 facilities which provided complete data accounted for a combined resident population of 98,034. For this resident population, the following incidence figures were calculated:

1. 9343 or 9.53% were classified as Hearing Impaired (Hard of Hearing or Deaf)
2. 7100 or 7.24 % were classified as Hard of Hearing
3. 2243 or 2.29% were classified as Deaf

Percents are sometimes misleading, however. It is very important to determine the extent to which estimates varied from institution to institution. In order to accomplish this, percentages of HOH/MR and DEAF/MR residents were calculated for each institution. Then the percentages were rounded to the nearest whole percent.

Figure 1 presents the distribution of estimates of the percentage of the institution population which is Hard of Hearing; Figure 2 is a parallel portrayal of estimates of the percentage of Deaf residents. These figures allow us to determine at a glance how many institutions reported each percentage figure.

What do these figures reveal? First, it is apparent that estimates varied. For example, estimates of the percent of HOH/MR residents in an institution varied from 0.21% to 35.40%. The range of estimates of the percent of residents who were DEAF/MR was more constricted, varying from 0.00% to 12.17%.

When population figures were combined, and percentages were calculated, we determined that 7.24% of the institutional population for which we had figures was classified as HOH/MR, while 2.29% was classified as DEAF/MR. Of course, Figures 1 and 2 ignore the size of an institution, whereas the overall percentage figures give more weight to reports from larger institutions. Still it is useful to determine the probability of our overall population figures holding true in any given institution. Considering first the HOH/MR, we find that only four institutions actually reported that HOH/MR residents represented approximately 7% of their resident population. By contrast, 22% of the institutions reported percentages of DEAF/MR residents which approximated the overall figure of 2.29%.

It is clear that estimates of the percent of DEAF/MR residents clustered around 2.29 percent. For example, the modal or most frequent response was 1%, with 2% and 3% the next most common estimates. In effect, 73% of the institutions reported an incidence of DEAF/MR residents ranging from 1 to 3%. This suggests that we would be fairly safe in guessing, should we visit a new institution, that approximately 2% of its population is deaf.

This surely is not so easily achieved with respect to the HOH/MR population, however. First, the modal or most frequent incidence figure was roughly 1%, a far cry from the

FIGURE 1. VARIABILITY IN ESTIMATES OF THE PERCENT OF HOH/MR RESIDENTS IN INSTITUTIONS

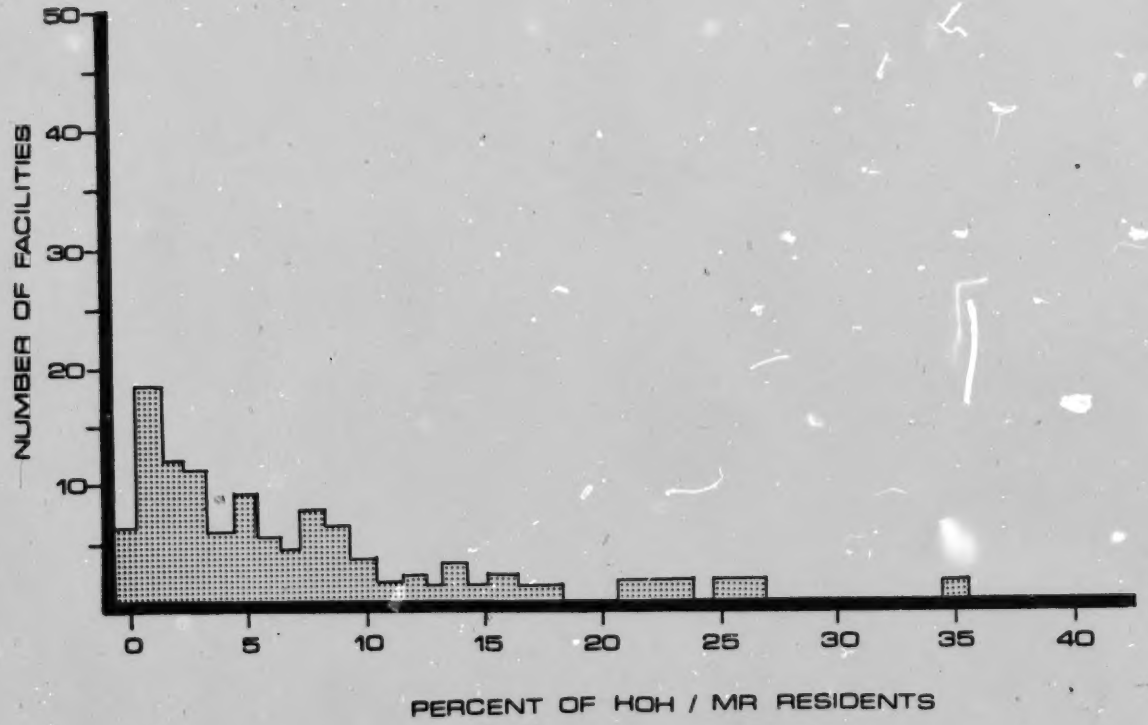
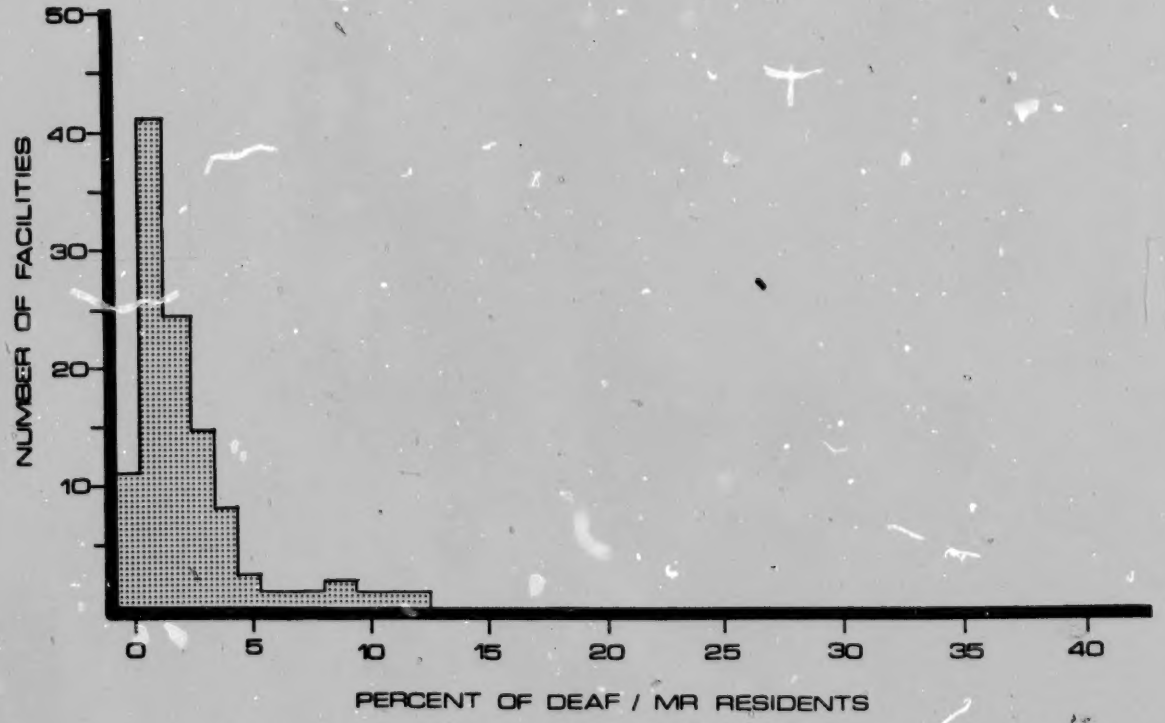


FIGURE 2. VARIABILITY IN ESTIMATES OF THE PERCENT OF DEAF/MR RESIDENTS IN INSTITUTIONS



overall figure of 7.24%. Only 15% of the institutions reported figures indicating that 6, 7, or 8% of the institutionalized population was Hard of Hearing. Quite simply, it would be risky, at best, to predict that approximately 7% of an unfamiliar institutionalized retarded population is hard of hearing.

While some of this variability may, of course, reflect true differences in the extent of hearing impairment among institutions, we must suspect that much of it can be attributed to two of the problems noted at the beginning of this section--varying definitions of hearing impairment, and the approximate nature of population estimates. Unfortunately, we cannot separate the true differences from the differences which are more a function of error and diagnostic procedure.

We must now ask whether or not the present incidence figures are consistent with those of previous studies. The answer is yes and no. For example, our figures are only slightly higher than those of a recent survey of New York state schools for the mentally retarded (Darnell, 1971). Using functional definitions, that survey reported that 7.1% of the resident population was hearing impaired (5.5% HOH/MR; 1.6% DEAF/MR). A survey of Michigan state schools revealed an 8% incidence of hearing loss, again close to the figures in the present survey (Michigan Dept. of Mental Hygiene, 1971). Our figures are also at the upper bounds of estimates of the extent of hearing impairment in the general school population, which are generally placed between 3 and 10% (Kirk, 1972). Thus, our figures support the notion that the prevalence of hearing impairment among the institutionalized retarded is generally higher than that in the normal population, as Lloyd (1970) and others have concluded from their reviews of the literature.

On the other hand, our figures are lower than those reported in some studies, particularly those in which groups of institutionalized residents were actually administered puretone examinations. For example, Schlanger and Gottsleben (1956) tested residents at the Vineland Training School using a criterion of a 30 dB loss or greater in either ear or both ears. They reported a 35% rate of hearing loss, with hearing loss more prevalent among older than younger residents. Rittmanic (1959), in a study of testable residents at the Dixon State School, used a puretone criterion of 15 dB in one ear or both ears and reported an overall rate of hearing loss of 40.5%. Among school aged children at the Walter E. Fernald School, 24% of the residents had a hearing loss, as reflected by a loss of 20 dB or more in either ear (Johnston & Farrell, 1954). Other such studies could be cited, adding to the confusion. (For an unraveling of much confusion and a more complete review of studies, see Lloyd, 1970.).

We must first note the discrepancy between survey studies and studies in which populations were actually tested with puretone audiometry. Although many of the facilities surveyed in the present study relied heavily on puretone results in classifying residents as hearing impaired, the study was designed to elicit reports in terms of the functional definitions offered. It is very possible that some respondents were not prone to include in their estimates residents who had a loss in one ear but functioned normally through use of the other ear. This could partially account for the fact that our survey, as well as those conducted in New York and Michigan, reported lower incidence figures than several studies in which residents were actually tested and puretone criteria for loss in either ear were applied. It is also possible that our figures are lower because many facilities have not tested their entire resident populations and know only of residents who have displayed functional difficulties attributable to significant hearing impairment.

We do not wish to obscure the more important points, however. It is simply very difficult to assess the extent of hearing impairment among the mentally retarded without running up against a number of methodological problems. Lloyd and Reid (1967) pinpointed the most significant of these problems. When various studies are compared, they inevitably differ in at least three critical aspects--the audiometric techniques used, the criteria of hearing loss, and the percentage of subjects excluded because they were deemed "difficult-to-test." Audiological assessments differ with respect to instructions, testing environment, competency of the audiologist, and so on. Criteria of hearing loss, even when puretone testing is used, vary from greater than a 15 dB loss in either ear or both ears to a more rigorous criterion of failing to respond at 30 dBs or more in either ear or both ears. Moreover, the frequency ranges at which testing is done vary from study to study. Finally, Lloyd and Reid (1967) noted marked discrepancies among studies in the number of subjects labelled untestable or difficult-to-test, concluding that most investigators report findings for readily testable and cooperative subjects who may not represent the total population under scrutiny.

We wish to emphasize the following points. First, although our own survey reported a 9.53% rate of hearing impairment among the institutionalized retarded, that figure is an estimate based on 52% of the universe of state institutions and must be regarded with caution. Secondly, as our analysis of the range of estimates among institutions indicated, this figure is by no means constant from institution to institution. Estimates of the percent of DEAF/MR residents were not as varied as estimates of the percent of HOH/MR residents, but in both cases, it is more prudent to suggest

a likely *range* of incidence than to settle upon a single percentage figure. We must also emphasize the fact that if an institution conducts its own audiometric testing of residents it will very possibly arrive at different, and often somewhat higher, figures than the ones presented here.

Finally, and most importantly, we cannot neglect to note the fact that the testing of hearing impairment is plagued by lack of standardization in procedures and criteria of hearing loss. Both functional need and puretone audiometry results are important, and residents should be assessed by a variety of methods so that functional criteria and puretone criteria may be compared and contrasted. However, there is a clear and immediate need for standardized procedures and criteria which can be used to make informed decisions about the programs appropriate for individual residents.

WHAT ARE THE CHARACTERISTICS OF HI/MR RESIDENTS?

Survey respondents were asked to break down estimates of total, HOH/MR, and DEAF/MR population sizes by age and intelligence level, using the matrices in the survey form (see Appendix A). There were six age categories--under 6, 6-12, 13-18, 19-39, 40-60, and over 60; and there were five standard intelligence levels--borderline (70-84 IQ), mild (55-69), moderate (40-54), severe (20-39), and profound (0-19). The primary reason for requesting these breakdowns by age and IQ was to determine whether or not the hearing impaired group in institutions for the mentally retarded differs from the general institutional population.

In all, only 94 facilities (or 44% of the 212 institutions which received survey forms) provided useable age and IQ breakdowns for total population, HOH/MR population, and DEAF/MR population. An additional number of facilities provided one or two of the requested population figures and breakdowns. For example, several facilities offered breakdowns for their hearing impaired residents but provided either a global estimate of total population or no estimate at all. The figures presented below are based on available information for each of the three relevant populations considered separately. The breakdowns of total population are based on 93,321 residents in 108 facilities; breakdowns of the HOH/MR population on 7,573 residents in 123 facilities; and breakdowns of the DEAF/MR population on 2,487 residents in 126 facilities. As a result, the population figures on which percentages are based vary somewhat from the population figures presented in the preceding chapter. [1]

Figure 3 presents parallel data regarding the percentage of residents in each of the six age ranges within the total institutional population, the HOH/MR population, and the DEAF/MR population considered separately. For example, 10.7% of the residents on which we have information are in the 6-12 age range. By comparison, 11.7% of the HOH/MR residents and 15.6% of the DEAF/MR residents are in the

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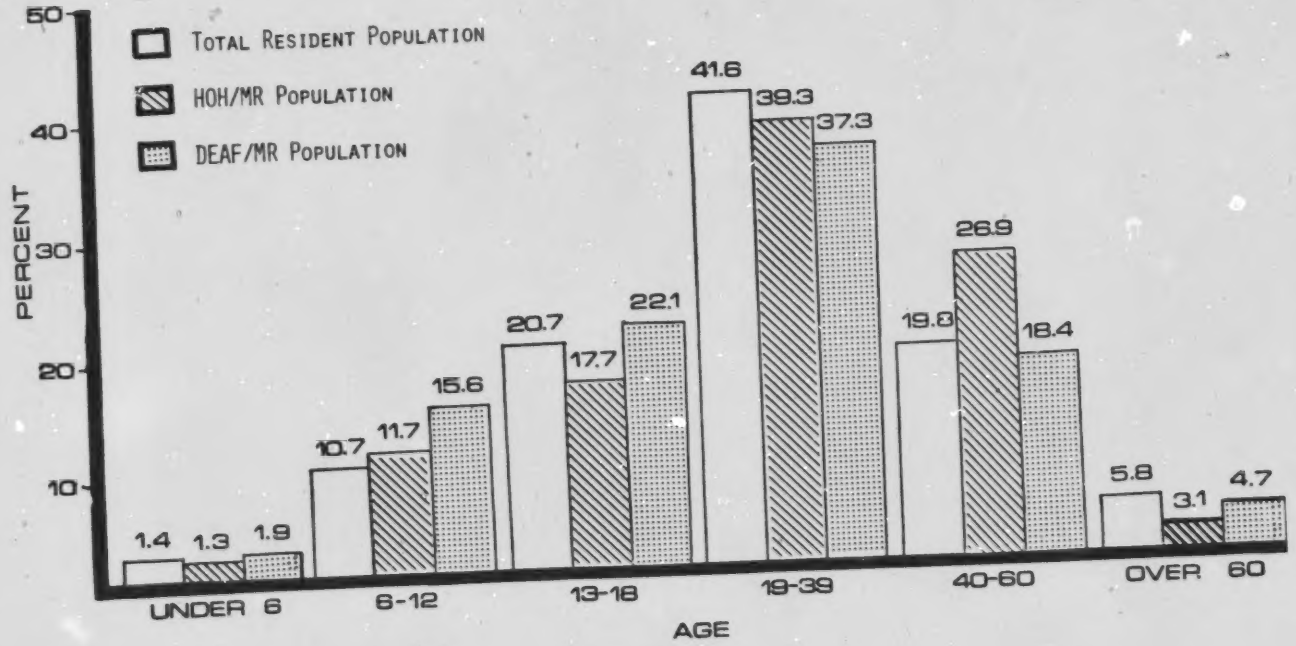
[1] Appendix B contains three more complete tables which show age and IQ distributions for the total population, the HOH/MR population, and the DEAF/MR population. These tables include data from institutions which did not provide breakdowns by age, IQ, or both. The portions of these tables marked "Not Reported" do not figure in our present analysis; it is the main bodies of the tables which will be discussed below.

FIGURE 3. AGE DISTRIBUTIONS OF RESIDENT GROUPS IN STATE INSTITUTIONS FOR THE RETARDED



6-12 range. As the figure clearly shows, the two hearing impaired populations do not differ greatly from the general institutional population with respect to age. As a result, no formal tests were conducted to compare age distributions. What is noteworthy is the fact that approximately two-thirds of the total institutional population (67.18%) is over the age of 18; that is, the majority of residents are adults beyond the typical cut off for inclusion in educational programs. Similarly, hearing impaired residents are generally over the age of 18, with many of them falling in the "younger adult" category. Within the HOH/MR population, 69.31% are adults; within the DEAF/MR population, somewhat fewer (60.38%) are over 18. Thus, our first conclusion is that programming for the hearing impaired in state institutions for the retarded should generally concern itself with the needs of the HI/MR adult.

These age distributions were somewhat surprising. We had expected to find higher incidences of hearing impairment among the very young (under 6) and among the very old (over 60). Yet the figures indicate that just as very few persons in the total institutional resident population are under 6 or over 60, very few in the HOH/MR or DEAF/MR populations are under 6 or over 60. This is understandable if we consider aspects of institutional procedure.

Considering first the very young, it is generally the case that if a child is admitted to an institution under the age of 6, that child probably has very severe, multiple handicaps which require the intensive medical-nursing care which an institution can provide. These children typically receive care in an infirmary and do not receive the usual admission evaluations. Thus, while residents under the age of 6 may indeed have multiple disabilities, including hearing impairment, this fact is not represented in institutional reports based on evaluations of the general resident population.

As for "senior citizens," we would also expect them to have a high incidence of hearing loss, in large part because of hearing impairments attributable to the aging process. For example, an earlier study (Rittmanic, 1959) found that fully 84% of the residents over 60 tested at the Dixon State School had a hearing loss. However, as our figures suggest, very few people over 60 are left in state institutions for the retarded, primarily because many have been transferred to nursing homes in recent years. Moreover, the elderly most likely to be transferred to nursing homes are those who are more severely involved; the mildly and moderately retarded, and those without multiple disabilities, are not prime candidates for intensive nursing home care. This would account for the fact that the percents of HOH/MR and DEAF/MR residents over the age of 60 are no larger than the percent of institutionalized residents over 60.

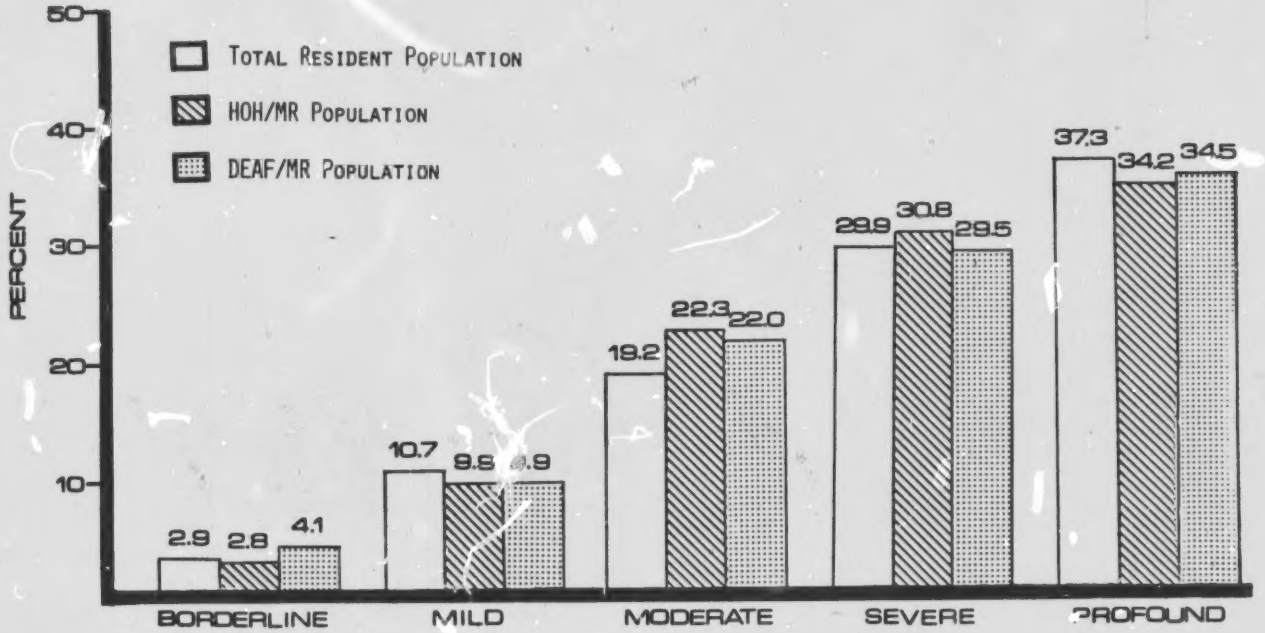
Figure 4 presents a breakdown of the three populations by intelligence levels. Again, it is apparent that the hearing impaired groups do not differ markedly from the general institutional population. In the total institution population, approximately two-thirds (67.22%) of the residents are severely and profoundly retarded. Similarly, 65.00% of the HOH/MR population and 63.93% of the DEAF/MR population fall in the severe and profound ranges of retardation. In sum, then, the hearing impaired retarded, like their hearing peers in institutions, are generally severely retarded, though it would be a mistake to ignore the fact that like most institutionalized retarded, they are a varied lot.

Severe retardation and other handicaps often seem to go hand-in-hand. As a result, we had expected to find a disproportionate number of hearing impaired residents in the more severe ranges of retardation. Why was this not the case? While our finding is consistent with those of at least two other studies (Siegenthaler & Krzywicki, 1959; Schlanger & Gottsleben, 1956), the matter has by no means been resolved--in part because of lack of standardization in reporting incidence figures. Hogan (1973) shed some light on the issue when he noted that some incidence studies calculate the percent of HI/MR residents by dividing the number of subjects failing the test by the number who passed plus the number who failed, while others use as the denominator number passing, number failing, and number untestable. When Hogan conducted audiometric screening of retarded residents of the Plymouth State Home and Training School, he found that the percentage failing the screening increased as a function of degree of retardation--when the number of failures was divided by the number tested. When the total number of persons upon whom screening was attempted (including the untestable) was used in calculating percents, it appeared that the more severely retarded had no greater incidence of hearing loss than the less severely retarded. This would suggest that we must interpret past findings in light of the size of the untestable group and the method by which incidence figures were calculated.

What Hogan neglected to emphasize was that the severely and profoundly retarded in his study were the residents most likely to fall in the "untestable" category. The critical difficulty is that we cannot draw conclusions about untestable subjects. They may indeed be hearing impaired, or they may have nonauditory impairments--motor, speech, or mental disorders--which make them difficult-to-test (Hogan, 1973).

The net effect is skepticism regarding our finding of no relationship between hearing impairment and mental retardation. We do not know precisely how respondents identified

FIGURE 4. INTELLIGENCE DISTRIBUTIONS OF RESIDENT GROUPS IN STATE INSTITUTIONS FOR THE RETARDED



hearing impaired residents. It is, however, possible--perhaps even probable--that significant numbers of profoundly and severely retarded persons are indeed hearing impaired but are not identified as such because of testing difficulties.

In interpreting our finding, one must also wonder about the trend toward deinstitutionalization and its impact on the changing complexion of residential facilities. In the last several years, many less severely retarded persons have left institutions--bound for new community residential facilities, their own homes, and independent living. This, then, would mean that a greater number of the less severely retarded still in institutions today are multiply disabled, and it could account for the fact that multiply handicapped HI/MR residents were not, in our survey, found to be more severely retarded than the general institutional population.

Clearly more intensive research is required if the relationship between hearing impairment and intelligence, as well as that between hearing impairment and age, are to be understood. Whatever the true relationships are, it is still valid to state that substantial proportions of the institutional population, including hearing impaired subpopulations, are severely and profoundly retarded (and relatively old) today. Our best prediction for the future is that an increasing percentage of the institutionalized retarded will be more severely retarded and will have disabilities in addition to retardation.

WHAT PROCEDURES ARE USED IN DIAGNOSING AND EVALUATING THE HI/MR RESIDENT?

The development of appropriate programs for the HOH/MR or the DEAF/MR hinges on the ability to identify them accurately. We suspected initially and became further convinced after reviewing the returned surveys that institutions differ greatly in diagnostic services offered and criteria used for labelling residents as deaf or hard of hearing. The variability in estimates of the size of the hearing impaired population bears this out.

One obvious way to identify an HI/MR resident, and possibly the best way, is through a hearing evaluation upon admission. The HI/MR Survey asked if a hearing examination was part of the facility's standard admission procedure. Such an examination was standard in 60% of the 156 facilities responding. A somewhat higher percentage of facilities (68%) reported that they gave speech and language evaluations as part of standard admission procedure.

Very probably, many of the facilities which did not routinely give such evaluations did so if hearing impairment or language disability were suspected in an individual being admitted to the institution. Facilities were asked to indicate the types of audiological evaluations which were given. Responses to this question are summarized in Table 1.

Of the 158 facilities returning useable surveys, 147 reportedly used at least one audiological procedure; 83.5% indicated that they used puretone testing, and this was clearly the most widely used procedure. However, most facilities used several types of audiological evaluation, for the average facility checked between three and four of the five options listed.

Quite interestingly, operant or stimulus response audiology--a rather recent innovation--appeared to have had a broad influence on audiological assessment. Facilities were asked this question: If you do give hearing examinations at admission, do you use operant and/or stimulus-response conditioning audiology? Many of the facilities which gave hearing examinations routinely at admission indicated that they used operant audiology. In addition, some facilities which did not give routine hearing examinations nevertheless used operant audiology when hearing impairment was suspected. In all, 60% of the facilities answered affirmatively to the question about the use of operant audiology.

Regardless of the specific evaluation techniques used in assessing hearing impairment, there are a variety of ways to arrive at the decision that a student is hearing impaired.

Table 1

What Types of Audiological Evaluations Are Given?

Evaluation Technique	Number of Facilities	Percent of Facilities (N = 158)
Puretone	132	83.5
Sound Field	93	58.9
Speech	104	65.8
Screening	114	72.2
Other	57	36.1
No Response or None	11	7.0

When asked to indicate their primary criterion for classifying a resident as HI/MR, 145 facilities checked one or more option:

1. 32% indicated that they relied primarily on puretone audiometry results
2. 22% gave first priority to the functional need of the resident
3. 26% considered both puretone results and functional need

Other scattered responses indicated that still other criteria or combinations of criteria were used in decision making. The few facilities which did not answer the question may not have had the capability of making such diagnostic decisions. For the most part, puretone audiometry performance was the primary criterion, although functional need was also important, as evidenced by the fact that it was given consideration by approximately half of the facilities.

Another aspect of institutional procedure with implications for the hearing impaired is the reevaluation of residents. In most cases, reevaluation of the hearing impaired is probably conducted within a larger context of resident evaluation. Facilities were asked this question: Are HI/MR residents periodically reevaluated as standard procedure? Approximately 84% of the respondents said, "Yes." As was the case with procedures for evaluation at admission, however, we must recognize that some facilities, while not conducting reevaluations routinely, do reevaluate residents--possibly on a looser or more variable schedule. A total of 142 facilities provided information about the frequency of such evaluations. Of these, a bare majority (51%) indicated that residents were evaluated yearly; 17% of the facilities reevaluated residents at least twice a year; 18% said that evaluations were conducted on an "as needed" basis; 7% reevaluated every two years; and 7% reported arrangements which fell in a miscellaneous "other" category. The most important finding is that approximately two-thirds of the 142 facilities reevaluated residents at least yearly.

The nature of these reevaluations varied somewhat, although most facilities conducted several types of evaluations. The most common type of evaluation of HI/MR residents was audiological (reported by 89% of the facilities). Speech, medical, language, and hearing aid reevaluation were also common. Approximately 75% of the institutions administered each of these evaluations. Psychological reevaluations were somewhat less common; they were reported by 64% of the institutions.

In summary then, although a small number of institutions surveyed were apparently not equipped and staffed to diagnose hearing impairment among residents, the overwhelming majority were. Almost two-thirds of the facilities reported that they gave hearing examinations as part of standard admission procedure. A very large number of institutions used puretone audiometry and based their classification of students as hearing impaired largely on puretone audiometry results, although functional need was also reported as an important consideration by about half of the institutions. Operant audiology was used in some manner by 60% of the facilities. Finally, approximately two-thirds of the institutions engaged in a rather broad range of resident reevaluation on at least a yearly basis.

WHAT SERVICES ARE AVAILABLE TO THE HI/MR RESIDENT?

As the review of the literature suggested, very little is known about current programming for the Hearing Impaired/ Mentally Retarded person. The development of special, distinct programs for the HI/MR resident in public institutions for the mentally retarded is a relatively recent phenomenon. According to most observers, the HI/MR resident has traditionally received no training to speak of, or has had access to general training and education programs within the institution, but has not often participated in a program specifically designed for the HI/MR student.

The HI/MR Survey provided useful information about current trends in programming for the Hearing Impaired/Mentally Retarded. In this section, we will review seven major clusters of findings. First, we will ask how many facilities report having distinct programs for HOH/MR and DEAF/MR residents. Secondly, we will consider the types of therapy, instruction, and communication techniques used with the hearing impaired resident, whether or not a distinct program is in operation. Thirdly, we will examine briefly additional services such as workshops and community living facilities which affect the hearing impaired, and fourthly, we will focus on vocational rehabilitation of the HI/MR resident. Finally, we will report on the types of special equipment, including hearing aids, used by institutions in working with the hearing impaired; refer briefly to staffing, staff training, and involvement with colleges and universities; and finally, discuss respondents' self-evaluations of programs for the hearing impaired.

Do Institutions Have Distinct Programs for the Hearing Impaired?

When a disability is perceived as serious and widespread, we expect to witness the development of special programs designed to meet special needs. Facilities were asked this very important question: Does your facility have a distinct program for the (1) hard of hearing, (2) deaf, or (3) deaf and hard of hearing in a combined setting? Of the 158 institutions surveyed, only 76 (48%) checked one or more options. In other words, slightly over half of the institutions did not have a distinct program for any hearing impaired group. Of the 76 which clearly felt that they had one or more distinct programs, the majority (59%) had a single program serving both the deaf and hard of hearing. Another 16% had a distinct program for the deaf and a distinct program for the hard of hearing, while 9% had a distinct program for the deaf only. A few facilities (12% of the 76) checked all three options, apparently indicating

that they had distinct programs for the deaf, hard of hearing, and deaf and hard of hearing combined. A few facilities spontaneously mentioned that they operated specially-funded Deaf-Blind programs.

As later findings will suggest, it is somewhat difficult to interpret these figures. While slightly over half of the facilities apparently had no distinct programs for the hearing impaired, the meaning of the word "distinct" is open to varying interpretations. Many of the "nondistinct" program settings did offer therapy programs which would be of special benefit to the hearing impaired. Still, we can conclude that most public institutions do not perceive themselves as offering distinct programs for the hearing impaired. Those which do provide distinct programs generally work with the deaf and hard of hearing as a single, hearing impaired group.

It became obvious that the hearing impaired retarded were not placed together in special living quarters, even when they were offered a distinct program during the day. Only 5 facilities reported that living arrangements for the HOH/MR were separate from those for hearing residents, and only 7 separated the DEAF/MR from the hearing population. The primary advantage of grouping the HI/MR residents together is that cottage or ward staff can be specially trained in communication techniques and can work as communication trainers. In support of this notion, Vernon (1970) argued on the basis of research that academic lags of the deaf are partially attributable to an overemphasis on the "oral" approach and that an earlier and stronger emphasis on manual communication would be very beneficial. A total communication approach encompassing both oral and manual communication might best be carried out in institutions by cottage personnel intensively trained to work with the hearing impaired. If hearing impaired residents are scattered throughout an institution, this special staff training would not be as feasible and HI/MR residents might have contact with many staff members who are not equipped with appropriate communication skills. On the other hand, some would argue that HI/MR residents benefit from interacting with hearing residents and can obtain the special training they require through classes which adopt a total communication approach. Whatever the case, in the overwhelming majority of public institutions, hearing impaired residents are not presently grouped in separate living facilities.

What Educational Programs and Services Are Available?

The majority of institutions reported that they do not have distinct programs for the HI/MR resident and do not

segregate the HI/MR in special cottages. However, this does not mean that the HI/MR population is not being served in such facilities. Often HI/MR residents appeared to have been included in general programming, although it was sometimes difficult to determine exactly what was available in facilities which did not launch special programs for the HI/MR.

The response rates for the section on the HOH/MR were generally high; 155 facilitfes provided largely useable data. For the section on the DEAF/MR, the response rate fell to 145. A few facilities had already described a combined program for the deaf and hard of hearing in the HOH/MR section. Thus, the figures which will be presented for HOH/MR residents are based, in part, on facilities which include deaf residents in a more general program for the hearing impaired. An additional number of facilities actually had no deaf residents, rendering the DEAF/MR section of the survey inapplicable. Thus the findings regarding services for the deaf pertain to 145 facilities which have deaf residents and did not describe services for the deaf in the HOH/MR section. While we will report both sets of findings here, we can perhaps place greater faith in the reports of services for the HOH/MR.

A critical ingredient in any programming for the HI/MR resident is a means of communication. Respondents were asked to indicate the primary method of communication used with the HOH/MR, and the primary method used with the DEAF/MR. The responses to these two questions are summarized in Table 2. While it is difficult to interpret the lack of response by a few facilities, the table gives us some indication of favored communication methods. The figures in the table are based on the responses of 141 facilities to the question about the HOH/MR and 129 to the question about the DEAF/MR.

It must be noted, first of all, that although the questions asked respondents to identify <u>the</u> primary method used, most checked at least two options. Indeed, several checked all five, indicating that facilities apparently find it useful to have an arsenal of communication methods at their disposal. However, some methods were more central than others. In working with the HOH/MR, the majority of respondents apparently relied on oral communication, taking advantage of the ability of the HOH/MR to understand and use oral speech. Total communication--the flexible use of lip reading, speaking, reading, writing, listening with residual hearing, signing, and fingerspelling--was the second most common communication method.

As expected, a different pattern of communication methods was found appropriate for the DEAF/MR resident. For the DEAF/MR, total communication and American Sign Language were the most frequent choices. Comments on the surveys and observation of

Table 2.

Primary Methods of Communication Used With the HOH/MR Resident and the DEAF/MR Resident

Communication Method	HOH/MR Frequency	HOH/MR Percent of Facilities (N = 155)	DEAF/MR Frequency	DEAF/MR Percent of Facilities (N = 145)
Oral	96	62%	36	25%
Fingerspelling	17	11	16	11
American Sign Language	26	17	43	30
Total Communication	62	44	73	50
Other	21	14	23	16
No Response or None	14	9	16	11

institutions for the retarded have indicated that in several places around the country, staffs have developed simplified sign languages especially suited for the mentally retarded. It clearly appears that facilities must have the potential for flexible use of a variety of communication methods in order to work with the Hearing Impaired/Mentally Retarded resident.

What specialized hearing therapy is offered to the HOH/MR and DEAF/MR residents? As Table 3 illustrates, several facilities did not respond to the question or indicated "None." Of the 135 facilities which indicated that they provided at least one type of hearing therapy to the HOH/MR, large majorities provided each of the following: auditory training, speech therapy, hearing aid orientation, and language training. Speechreading was somewhat less available. Similarly the DEAF/MR resident was offered a range of therapies, although only 115 facilities checked one or more option. We cannot conclude that certain types of therapy are much more prevalent than others; rather it seems that many types of programs are available. The average facility which responded checked four of the five options.

How much time does the HI/MR resident spend in instructional settings? Respondents were asked this question about instruction for the HOH/MR resident: For those residents capable of participating in a learning situation, what is the average number of clock hours per day that the individual HOH/MR resident spends in a special (i.e., classroom, tutorial, therapy) instructional setting? In response to this question, 80% of the facilities indicated that capable HOH/MR residents were spending at least some time in an instructional setting. However, the estimates of daily time in such settings were varied, ranging from an hour or less to six or more hours. There was no clear pattern of consensus, although three to five hours of instruction daily was fairly common. Reports of the educational involvement of the DEAF/MR resident were almost identical: 81% of the facilities provided an estimate of average time spent in instructional settings, but again there was no clear standard as to average hours per resident.

Pupil-teacher ratios also varied widely among facilities. Only 55% of the surveyed institutions provided an estimate of the pupil-teacher ratio for HOH/MR residents. In general, the facilities which did not provide estimates found it almost impossible to do so given the fact that they did not separate the HI/MR resident from other residents and had no basis for estimating pupil-teacher ratios for the HOH/MR resident in particular. For the facilities which provided information, however, the results were encouraging. Although reported pupil-teacher ratios varied widely, the vast majority (73%) reported ratios of six pupils or fewer per teacher. Reports on pupil-teacher ratios affecting the DEAF/MR were very similar.

Table 3.

Specialized Hearing Therapy for HOH/MR and DEAF/MR Residents

Therapy	HOH/MR		DEAF/MR	
	Frequency	Percent of Facilities (N = 155)	Frequency	Percent of Facilities (N = 145)
Auditory Training	108	70%	85	59%
Speechreading	78	50	78	54
Speech Therapy	110	71	75	52
Hearing Aid Orientation	116	75	86	59
Language Training	115	74	96	66
Other	17	11	20	14
No Response or None	20	13	30	21

Tutorial instruction was available in slightly fewer than half of the facilities which provided useable surveys. For the HOH/MR resident, tutoring was apparently available in 47% of the facilities; for the DEAF/MR resident, it was available in 43% of the institutions.

What Additional Services Are Available?

In addition to specialized hearing therapy programs, other programs are available to the HI/MR resident--most of which are probably available to other institutionalized retarded groups as well. Respondents were asked to check additional services which are available to the HOH/MR or DEAF/MR resident. Of course, the figures presented in Table 4 do not indicate how many HI/MR residents actually receive each of these services.

As was the case with other program questions, a sizable number of facilities either wrote in "None" or left the questions blank. Among the 134 facilities reporting that at least one of the additional services listed was available to the HOH/MR, sheltered workshops and volunteer services were most often mentioned. Almost half of the facilities surveyed indicated the availability of each of the following additional services: foster homes, group homes, and community programs.

Patterns of additional services available to the DEAF/MR resident were virtually identical. Sheltered workshops and volunteer programs were clearly the most common supplement to the programs of institutionalized residents, but it is also encouraging to note that foster homes and group homes are a significant option in many facilities. In both the HOH/MR and DEAF/MR sections of the survey, facilities which reported at least one additional service checked, on the average, between three and four of the six options.

Are Vocational Rehabilitation Services Offered?

The Research and Training Center in Mental Retardation at Texas Tech University has a special mission to conduct research which will reduce dependency among mentally retarded adults so that more of them can work and live independently. Consequently, the HI/MR Survey placed some emphasis on vocational rehabilitation of the multiply disabled HI/MR person.

Respondents were asked to describe any vocational rehabilitation services available to: (1) the HOH/MR resident; and (2) the DEAF/MR resident. The responses are summarized in Table 5.

A sizable number of facilities indicated by writing in "None" or by leaving the question blank that they did not provide such services. This was the case for 23% of the

Table 4.

Additional Services Available to
HOH/MR and DEAF/MR Residents

Special Services	HOH/MR		DEAF/MR	
	Frequency	Percent of Facilities (N = 155)	Frequency	Percent of Facilities (N = 145)
Sheltered Workshops	111	72%	95	66%
Foster Homes	74	48	69	48
Group Homes	71	46	66	46
Volunteers	105	68	94	65
Community Programs	69	45	61	42
Other	31	20	25	17
No Response or None	21	14	27	19

Table 5.

Vocational Rehabilitation Services Available to HOH/MR and DEAF/MR Residents

Services	HOH/MR		DEAF/MR	
	Frequency	Percent of Facilities (N = 155)	Frequency	Percent of Facilities (N = 145)
Special Rehabilitation Counselor	65	42%	55	38%
Pre-vocational Instruction	93	60	80	55
Work-Study Program	48	31	31	21
Other	31	20	25	17
No Response or None	35	23	50	34

facilities in reference to the HOH/MR and 34% of the facilities in reference to the DEAF/MR. In effect, 120 of 155 facilities indicated that at least one vocationally-oriented program was available to the HOH/MR resident, and 95 of 145 reported such services for the DEAF/MR. As Table 5 indicates, the most prevalent type of program was pre-vocational instruction; over half of the facilities reported that such instruction was available to hearing impaired residents. Provision of a special rehabilitation counselor was the next most prevalent type of vocational rehabilitation service. Work-Study type programs were available in less than a third of the facilities. Many facilities checked "other" and mentioned special work training programs and off-campus placement programs. On the whole, we must conclude vocational services for the HI/MR are not well-developed, at least not as much so as therapy programs specifically directed toward the communication problems of the hearing impaired or additional programs such as sheltered workshops and community volunteers.

This shortage of vocational services becomes even more apparent when we consider how many HI/MR residents are, according to the respondents, served by Vocational Rehabilitation. When asked to indicate the number of HOH/MR residents so served, only 71 of 155 (46%) facilities provided an estimate. For the 71 facilities which had one or more HOH/MR resident being served by Vocational Rehabilitation, the average number was eleven per facility. Only 57 of 145 (39%) facilities indicated that one or more DEAF/MR resident was being served by Vocational Rehabilitation, and among the 57, an average of five clients per facility was served. We can conclude from this that vocational services are more available to the HOH/MR than to the DEAF/MR. The more significant conclusion, however, is that neither group of hearing impaired residents is receiving a great deal of vocational rehabilitation. One could argue that vocational rehabilitation services are not appropriate for this multiply handicapped group, but as we reported earlier, the hearing impaired in institutions for the mentally retarded are not significantly lower in intellectual functioning than their hearing peers and the majority of them are over eighteen years of age. It appears, then, that one clear need is the extension of vocational rehabilitation to the Hearing Impaired/Mentally Retarded.

What Equipment Is Available to the HI/MR Resident?

Successful treatment of the HI/MR person often requires special equipment. When facilities were asked to indicate the number of residents with individually prescribed hearing aids, 139 of them indicated that one or more resident had a hearing aid. These institutions reported a combined

total of 1, 536 residents with aids, an average of only eleven residents per institution. Recalling the figures presented earlier regarding the size of the HOH/MR population known to reside in institutions for the retarded, this suggests that the majority of HOH/MR residents who could possibly benefit from hearing aids are not equipped with them.

Furthermore, not all residents with prescribed hearing aids actually wear them. According to the respondents who provided figures, 1,201 or 78% of the 1,536 persons reported to have individual aids actually wear them. Quite understandably, 67% of 151 respondents claimed that HI/MR residents have difficulty in caring for hearing aids. As one respondent stated, there is a need, not only for more hearing aids, but for a program designed to help residents wear and care for their hearing aids.

Respondents were also asked whether or not a soundproof audiological testing booth was available to their facility. Such testing facilities were apparently fairly common, for 68% of the facilities reported that one was available. Rooms equipped with a group auditory training unit were scarcer. Only 56 facilities (35% of the responding sample) claimed to have at least one room equipped with a group training unit.

Who Works with the Hearing Impaired?

An attempt to determine the number and character of personnel involved primarily with HI/MR residents was largely unsuccessful. It was evident that some institutions listed their total staff when asked to describe personnel involved exclusively with the HI/MR population. Others failed to correctly identify supportive staff. In large part, the inadequacy of data regarding staffing patterns was due to the fact that the majority of institutions did not have distinct programs for the hearing impaired and almost none segregated them in special living facilities. Even when specific programs for the hearing impaired were in operation, it appeared that many staff members had overlapping duties, serving hearing as well as hearing impaired residents. The only conclusion we would want to put forth on the basis of a preliminary screening of the data is that staffing patterns vary widely. More intensive research would be necessary to determine actual degrees of involvement of various staff members with the hearing impaired.

The survey did offer some information about staff training and the involvement of colleges and universities in programming for the HI/MR resident. When facilities were asked whether or not they provided specialized in-service orientation and/or training for staff members working with HI/MR

residents, 59% responded "Yes" and 41% responded "No." When asked whether any colleges or universities were involved in services for HI/MR residents, 44% responded "Yes." In decreasing order of frequency, these involvements by colleges and universities were practicum, consultation, training, and research. This suggests that significant numbers of institutions are not providing special training for staff and are not drawing on the resources of colleges and universities to improve programming for the hearing impaired.

How Do Respondents Perceive Their Program Needs?

Before we discuss implications of the study from the perspective of the research team, we wish to refer briefly to comments made by the respondents in evaluating their own programs and suggesting research and training needs. Responses to open-ended questions are always difficult to analyze, and we will not attempt any formal analysis here. Difficulties in summarizing were compounded by the fact that different respondents often expressed diametrically opposed views. For example, while several facilities stated a dire need for better diagnostic and evaluative measures, others viewed measurement procedures as a strength of their particular program. Quite understandably, needs varied widely from institution to institution.

There were, however, some common themes. For example, many facilities were concerned about ways to group hearing impaired residents, means of communication to be used with the hearing impaired, and a lack of intensive training for staff working with the hearing impaired. Many facilities raised questions about the validity of diagnostic and evaluative procedures. Several areas of concern, listed here in no special order of significance, emerged from the respondents' comments:

1. *The inadequacy of diagnostic/evaluative measures and procedures.*
2. *The need for better methods of grouping residents according to need.*
3. *Inadequacy of training for aides, attendants, and professionals.*
4. *The need for special materials and methods for working with the HI/MR resident.*
5. *A need for increased parental involvement.*
6. *A need for improved administrative support.*
7. *A shortage of teachers with dual training in hearing impairment and mental retardation.*
8. *A need for the dissemination and sharing of knowledge about HI/MR residents and programs for them.*

9. *Various inadequacies in the physical plant.*
10. *Inadequacies of audiological facilities and equipment.*
11. *A need for behavior modification programs appropriate to the needs of the HI/MR resident.*
12. *Difficulties in instituting manual communication systems.*
13. *A dearth of research and training activities by colleges and universities.*
14. *Difficulties created by staff turnover.*
15. *A need for increased visibility of HI/MR residents and programs for them.*
16. *Difficulties in funding costly special programs.*
17. *The need for methods of treating language difficulties in the hearing impaired.*
18. *Unacceptable teacher-pupil ratios.*
19. *A need for consultants.*
20. *The shortage of vocational rehabilitation services for employable HI/MR residents.*

The sheer length of this list suggests that respondents perceive a variety of elements of programming for the hearing impaired which could stand improvement, though priorities for improvement differ widely from institution to institution. If all of these concerns could be erased in an institution, its program for the hearing impaired would undoubtedly be a model for all.

HOW DO SELECTED PROGRAMS FOR THE HEARING IMPAIRED OPERATE?

The presentation thus far has focused, somewhat abstractly, on general patterns of service for the hearing impaired in institutions for the mentally retarded. In this section, we have attempted to bring to life some of the issues raised already by describing three concrete programs. The programs chosen for review are not necessarily the best programs in the country; they are, however, good ones, reflecting a concern with the special needs of the Hearing Impaired/Mentally Retarded. We deliberately selected institutions of different sizes in order to demonstrate that good programs can operate not only in large, well-staffed, and well-funded facilities, but also in smaller institutions with fewer hearing impaired residents. Finally, we selected surveys from the file which were rich in supplemental comments and critical self-evaluations in order to highlight the concerns of practitioners.

Program A

In a large state school for the retarded in the Midwest serving 2316 residents, 512 residents (22%) were identified as HOH/MR and 91 (4%) were identified as DEAF/MR. Given this relatively large population of hearing impaired residents, it is not surprising that Facility A has launched special programs.

Procedures. Residents are given both a hearing examination and a speech and language evaluation upon admission. In addition to using operant audiology, the speech and hearing specialists use puretone, sound field, speech, screening, impedance, and other specialized tests as needed. The major criterion for classifying the hard of hearing is puretone testing indicating a bilateral loss of 27 dBs or more at one or more frequency level in the 200-2000 range. In evaluating residents suspected to be deaf, potential for oral communication with the help of amplification is also considered.

Reevaluation of residents in important areas of functioning is done on a variable basis, with hearing aid reevaluations conducted yearly.

Program. Facility A operates a distinct program for DEAF/MR residents; HOH/MR residents attend regular special education classes or other programs, blending into the general resident population.

For the HOH/MR resident, the primary method of communication is oral, although total communication is used with the highly nonverbal resident. Residents capable of benefitting

from class instruction spend an average of two and a half hours in an instructional setting daily. Those who cannot participate in formal training have access to a variety of programs, including a behavior modification program in self-help skills. All the types of specialized hearing therapy listed in the survey are available to HOH/MR residents, along with a total communication program for the highly non-verbal student who might profit, at least initially, from a combined approach to communication. All of the additional services listed in the survey--sheltered workshops, foster homes, community programs, and so on--are available to HOH/MR residents, typically in joint institution-community administered programs. Finally, a full range of vocational rehabilitation services--a special counselor, pre-vocational instruction, and a work-study program--is available to residents, and 45 HOH/MR residents are served by Vocational Rehabilitation. Thus, although the HOH/MR person is not placed in a distinct program, he or she has access to a wide range of campus and community programs which meet special needs.

The DEAF/MR resident, by contrast, has access to a distinct program and is, in fact, housed in a separate facility for the deaf. According to Facility A's respondent, a deaf resident generally spends 12 hours in an instructional setting. All activities from wake-up time at 6:30 A.M. to free time before bed at 8:30 are structured learning situations conducted by teachers and teacher aides. Again, residents who cannot profit from this instructional program have access to a variety of appropriate programs.

On the average, one teacher serves ten residents in the DEAF/MR program. However, for every four residents, there is one teacher aide. Aides are intensively trained in all phases of the program and accompany residents to various programs. Their primary responsibilities are to work with individual students in the classroom and reinforce the work of the teacher back at the cottage. For the DEAF/MR resident, total communication is relied upon heavily, and residents not only have access to a full range of specialized hearing therapy, but also are involved in additional types of programs, including vocational rehabilitation. Indeed, 29 DEAF/MR residents are reportedly served by Vocational Rehabilitation.

Of the total hearing impaired population, 58 have prescribed hearing aids and almost all use them although residents often have difficulty in caring for them. Problems were reduced through the designation of a staff person as a "hearing aid consultant" who checks daily on all hearing aid wearers. While Facility A does not have a room equipped with a group auditory training unit, it uses individual

aids or the Phonic Ear FM Loopless System aids. Facility A does have two sound-proof suites equipped for testing purposes.

Such extensive programming for the hearing impaired was facilitated by a Title I grant. Clearly such a program requires an extensive and well-trained staff. When asked to indicate the total number of staff members primarily serving the hard of hearing and/or deaf, Facility A provided the following account: 2 teachers of the deaf (one at the B.A. level, one at the M.A. level), one teacher of the DEAF/MR, a speech pathologist, an audiologist, five supervisory staff members, twelve attendants, 12 teacher aides, and one recreational therapist. Special training is provided for all staff members working in the Title I Hard-of-Hearing program, though other staff on campus are not specifically oriented toward the hearing impaired. The facility has relationships with three universities involved in research, training, practicum, and consultation.

Self-evaluation. In response to an open-ended question calling for an evaluation of program strengths, Facility A had much to label "adequate" or "superior." Aspects of the program rated superior by the respondent were: methods of audiological assessment, use of amplification in the form of the Phonic Ear System, ratio of students to teacher aides, resident use of hearing aids, and administrative cooperation. The pupil-teacher ratio, funding, staff training, and amount of instruction were also mentioned as strengths of the program.

Facility A cited three main areas of inadequacy. First, the rate of turnover among teacher aides, who are critical to the operation of the DEAF/MR program, was high. Second, present physical facilities for cottage and classroom were considered inadequate. Plans had already been made for new construction and renovation of existing facilities. Finally, Facility A mentioned the problem of receiving DEAF/MR children too late, typically when they are five or older. The feeling was that comprehensive programs for the Hearing Impaired/Mentally Retarded must be started earlier to be optimally successful. Facility A also noted a need for better techniques for the early assessment of difficult-to-test children and more detailed behavior modification programs in self-help skills. Finally, perhaps because of the heavy involvement in vocationally-oriented programs, Facility A foresaw a need for community programs for the HI/MR resident--ideally, a community workshop combined with sheltered living arrangements.

Program B

Facility B, located in the West, is considerably smaller than Facility A, but the incidence of hearing impairment within it is apparently high. Of 782 residents, 15% were identified as hard of hearing and 3% as deaf.

Procedure. Residents routinely receive a hearing examination upon admission, with operant audiology used as needed, and a full range of audiological evaluation techniques part of the standard diagnosis. Classification of a resident as hearing impaired is done largely on the basis of functional need. Residents are reevaluated yearly or as recommended by otolaryngologist or audiologist. Psychological reevaluations are conducted every three to five years.

Program. Facility B has a distinct program for the deaf and hard of hearing combined. Only about ten of the approximately 140 HI/MR residents can presently be served in a formal school program for the hearing impaired. For the rest, there is a program of day activity classes, recreation, physical education, and fine arts. The deaf and a few of the hard of hearing are housed separately from the other residents. Total communication is the preferred method of communication for both the HOH/MR and DEAF/MR, although oral communication is used with a few of the HOH/MR residents. The pupil-teacher ratio for HOH/MR is six to one. Tutoring is available to students not enrolled in a formal training program. Most of the hearing therapy offered consists of auditory training, hearing aid orientation, and language training; speechreading and speech therapy are rarely used. The DEAF/MR resident is offered a special Total Communications Training program

Both the deaf and the hard of hearing have access to a sheltered workshop within the institution, as well as to volunteer services and a "Community Action Program." Foster homes and group homes are not available. Vocational rehabilitation is not provided by the Vocational Rehabilitation Department in the state; rather the institution must provide any vocational programs and does provide pre-vocational instruction, work-study, evaluation, work adjustment training, and on-the-job training. Fourteen HOH/MR residents and two DEAF/MR residents are served by these institutional programs with a vocational emphasis. However, the respondent to the survey, the Director of Communication Therapies, noted the difficulty of placing these clients once they are trained.

Of the 21 residents with individually prescribed hearing aids, 14 can be counted on to wear them regularly, although there are problems associated with helping residents to care for and wear their hearing aids. Facility B has a soundproof testing booth and one group auditory training unit.

The staff primarily serving the hearing impaired consists of one teacher of the deaf, a speech pathologist, a consultant audiologist, two supervisors, twelve attendants, and two teacher aides. Facility B provides special training for staff members working with the hearing impaired.

Self-evaluation. Facility B provided several useful comments on its strengths and needs. The aspects of the program considered most adequate were materials used in teaching, parental involvement through workshop training, and administrative support. Several important weaknesses were identified. First, there is a shortage of teachers, particularly for the profoundly and severely retarded hearing impaired student. Second, training for cottage staff is limited due to staff turnover and a limited staff to conduct Communication Therapies training. Third, it was pointed out that co-ed grouping would be desirable to further normalization. At present, deaf, hard of hearing, and low verbal males are on one cottage, while hearing impaired girls are on another. The preferred plan would be to place all deaf and hard of hearing residents in one cottage, and all minimally verbal and nonverbal residents on the other, regardless of sex. A related problem is the physical facility itself. Buildings are overcrowded and poorly decorated. Finally, Facility B called attention to a weak relationship with Vocational Rehabiltation and recognized a need for more help and support in vocational programming, on campus and off.

In identifying research, training, and service needs, the respondent for Facility B emphasized the need for evaluation of teaching materials and methods, and suggested the need for a behavior modification program to teach wearing of and caring for hearing aids. In fact, the more general call was for behavior modification training for teachers, particularly as a greater segment of the institutional population becomes profoundly and severely retarded. Another training need was in the area of Total Communication for professionals and paraprofessionals. Facility B recognizes weaknesses in its program and has several proposals for improvement; still its development of a "Communication Therapies" program and special arrangements for the deaf or nearly deaf suggest the beginnings of a strong effort to serve the hearing impaired.

Program C

The final program which we will describe is located in a smaller institution in the Southeast. Of 363 residents, only three had been labelled as hard of hearing, while fourteen (4%) were identified as DEAF/MR. At least

these were the residents targetted for special programming. Facility C, in contrast to Facilities A and B, does not group any hearing impaired residents in separate living facilities, but it does provide a special program.

Procedure. Residents are given a hearing examination as part of standard admission procedure, primarily through puretone, sound field, and screening evaluations. The facility is currently launching an operant audiology program and hopes to become equipped to do speech testing. Functional need is the primary criterion for classifying residents as hearing impaired. In actual practice, the distinction between the hard of hearing and the deaf is used only to decide whether oral or manual communication is most appropriate. Other factors besides functional need which are considered include puretone results, age, previous training, response to amplification, estimated receptive language level, and present communication skills.

Residents are reevaluated at approximately six-month intervals in a wide variety of areas. If a need exists, a resident can be referred to a university center specializing in communication disorders for further evaluation.

Program. Facility C refers to its program as one for the Hearing Impaired. All residents identified as hearing impaired are in some type of formalized instructional setting, though not necessarily an academic one. Each resident spends an hour daily with one or two other residents in small group instruction in a classroom setting, along with a minimum of two additional hours of training in the cottage living unit, under the supervision of the cottage teacher. The emphasis in small group instruction for the HOH/MR is on speech, speechreading, and auditory training, including hearing aid orientation. In addition, tutorial instruction is provided by a teacher aide who graduated from a school for the deaf and by volunteers. Programming for the DEAF/MR places a heavier emphasis on Total Communication. For most DEAF/MR residents, manual communication is the primary means of communication, but an attempt is made to continue speech and auditory training as well.

Facility C is considering grouping the hearing impaired residents within one or two campus units, each of which consists of three or four cottages housing 24 residents apiece. The main purpose of this rearrangement would be to facilitate staff training, particularly of cottage personnel. However, the idea of segregating the hearing impaired in a cottage or two was strongly rejected.

The hearing impaired at Facility C, while they do not have access to foster homes or group homes at present, can benefit from a campus sheltered workshop, volunteer programs,

and community programs such as church.

Vocational rehabilitation takes the form of pre-vocational instruction with an emphasis on campus job placements, primarily in the workshop, housekeeping department, food service, and educational department. At present, three DEAF/MR residents hold on-campus work placements. No hearing impaired residents are currently in vocationally-oriented programs.

Only three residents currently wear individual hearing aids, largely due to a difficulty in obtaining funds. Others use Zenith training aids during class sessions. Close supervision of residents wearing hearing aids is needed. The facility has a Zenith FM Auditory Training Unit with ten training aids.

The staff primarily serving the Hearing Impaired/Mentally Retarded consists of one teacher of the deaf, a speech pathologist, and one teacher aide. The teacher aide coordinate both classroom instruction and activities for hearing impaired residents in their living units. Because the hearing impaired are dispersed across campus, attendants have not been heavily involved in programming for the hearing impaired resident. However, the general in-service training for all attendants includes a brief session on hearing impairments, and specific activity suggestions and "homework" assignments for individual residents are given to the cottage personnel to execute. Facility C has the advantage of interactions with four colleges and universities, one of which has a clinic for communication disorders to which residents can be referred for evaluation.

Self-evaluation. Facility C is largely satisfied with its efforts on behalf of the hearing impaired--primarily because the teacher, speech pathologist, and teacher aide are well-qualified and have the classroom and testing equipment and facilities to work effectively. The respondent for Facility C perceived a need for research on the effectiveness of various language training programs, particularly as they are adapted for use with the hearing impaired. A need was also expressed for a training manual and audio-visual aids for use in training cottage staff working with the hearing impaired, primarily because of the difficulty of developing such materials in house without enough time and staff to do so. Mention was also made of the need for a compilation of material on the Hearing Impaired/Mentally Retarded and the facilitation of communication among programs across the country.

WHAT ARE THE CONCLUSIONS AND IMPLICATIONS OF THE STUDY?

At this point, it is time to stand back from the data, consider their implications, and recommend steps toward the improvement of services for HI/MR residents in institutions for the retarded.

Review of Significant Findings

A review of the literature uncovered a large degree of confusion over the multiple disability of hearing impairment and mental retardation, not only with respect to its prevalence, but also with respect to diagnosis and programming--even though the general consensus was that hearing impairment is more widespread among the mentally retarded than it is in the general population.

As a result, the Research and Training Center in Mental Retardation at Texas Tech University undertook a mail survey of public institutions for the mentally retarded in order to determine: (1) the prevalence of Hearing Impaired/Mentally Retarded (HI/MR) residents, both the hard of hearing (HOH/MR) and the DEAF/MR, in state institutions; (2) characteristics of the HI/MR population; (3) procedures used in identifying and evaluating HI/MR residents; and (4) special programs, equipment, and staff available to the HI/MR resident.

With the aid of several organizations concerned with the hearing impaired and/or the mentally retarded, the HI/MR Survey was constructed and mailed to 212 facilities listed in the directory of the National Association of Superintendents of Public Residential Facilities for the Mentally Retarded. After the initial mailing and two rounds of follow-up inquiries to nonresponders during a period from July, 1973, to April, 1974, 181 or 85% of the facilities responded in one fashion or another, although a smaller percentage (75%) returned largely useable surveys.

The major findings of the study were as follows:

1. *Prevalence*. According to population figures provided by respondents, 9.53% of the institutionalized population is Hearing Impaired, with 7.24% of the population falling in the Hard of Hearing category and 2.29% classified as Deaf. However, the validity of these incidence figures was jeopardized by varying definitions of hearing impairment, approximate census figures, and incomplete survey data. Percents of hearing impaired residents varied considerably from institution to institution, though more so with respect to the Hard of Hearing than with respect to the Deaf. The figures are in accord with other survey results and suggest that the HI/MR population is a significant one.

2. *Characteristics of the HI/MR Population*. Characteristics of the HOH/MR and DEAF/MR populations were compared to those of the general institutionalized population. The ages of HI/MR residents, whether they were deaf or hard of hearing, were distributed much like those of the total institutionalized population. Approximately two-thirds of hearing and hearing impaired residents were reportedly over the age of 18. Similarly, the two hearing impaired groups appeared to be no more or less retarded than the general institution population. Approximately two-thirds of them fell in the severe and profound ranges of retardation. The precise relationship between intelligence or age and hearing impairment is, however, difficult to determine.

3. *Diagnosis and Evaluation*. At least part of the variability in estimates of the size of the HI/MR population is probably attributable to variations in diagnostic procedure. A hearing examination upon admission was reportedly standard procedure in 60% of the facilities; speech and language evaluations were more commonly given at admission. Most facilities used a variety of audiological testing procedures. Puretone audiometry, the most widely used, was employed in 83.5% of the institutions. Operant or stimulus-response audiology, a more recent innovation, was used in 60% of the facilities. In classifying residents as hearing impaired, 32% relied primarily on puretone results, 22% relied primarily on functional need, 26% considered both puretone results and functional need, and the rest used various multiple criteria. Approximately two-thirds of the institutions reevaluated residents at least yearly in a broad range of areas, emphasizing audiological re-evaluation.

4. *Services and Programs*. Only 48% of the respondents indicated that they had a distinct program for the Hard of Hearing, Deaf, and/or Hard of Hearing and Deaf combined. Of these, the majority operated a single program serving both HOH/MR and DEAF/MR residents. Only a handful of institutions clustered hearing impaired residents in special living quarters.

Whether or not "distinct" programs were available, institutions appeared to offer a wide range of educational services. Most facilities used more than one communication method with the hearing impaired. Oral communication, followed by total communication, was the predominant method used with HOH/MR residents; total communication, followed by sign language, was the predominant method used with the DEAF/MR.

Although 13% of the facilities apparently offered no specialized hearing therapies, roughly 70% of them offered each of the following: auditory training, speech therapy,

hearing aid orientation, and language training. Speechreading was less commonly offered. The average facility indicated that it offered four distinct types of therapy.

As for classroom instruction, approximately 80% of the facilities indicated that capable residents spent at least some time in an instructional setting each day. However, amounts of daily instruction varied widely, indicating no standard for classroom involvement. Pupil-teacher ratios also varied widely, in part because so many facilities did not operate distinct programs for HI/MR residents and had difficulty providing estimates. However, 73% of the institutions which provided estimates reported ratios of six or fewer pupils per teacher. Tutorial instruction was available in slightly less than half of the institutions.

HI/MR residents often had access to additional services which were presumably offered to hearing residents as well. Roughly two-thirds of the institutions indicated that sheltered workshops and volunteer services were available to HI/MR residents. Slightly less than half of the facilities offered foster homes, group homes, or various community programs. However, these figures do not reveal how many HI/MR residents actually benefit from offered services.

With respect to vocationally-oriented programs such as a special rehabilitation counselor, prevocational training, and work-study, 23% of the respondents apparently did not provide any such services for the HOH/MR and 34% apparently did not do so for the DEAF/MR. Prevocational instruction was the only vocational program reportedly available in a majority of institutions. Only 46% of the respondents provided a figure indicating that one or more HOH/MR resident was being served by Vocational Rehabilitation. And in these institutions, the average number served was eleven. Even fewer facilities (39%) reported that DEAF/MR residents were served, and the average number served was only five. The vast majority of HI/MR residents are not touched by Vocational Rehabilitation.

Needs for equipment for HI/MR residents were also detected. The majority of HOH/MR residents who could potentially benefit from individual hearing aids do not have them. Among the 1,536 persons reported to have individual aids, 78% actually wear them. The majority of respondents claimed that HI/MR residents have difficulty caring for hearing aids. Approximately two-thirds of the facilities have access to a soundproof testing booth, but only 35% have at least one room equipped with a group auditory training unit.

Staff analysis could not be conducted since so few facilities had staff exclusively devoted to HI/MR residents. Specialized training for staff working with HI/MR residents was provided by 59% of the institutions; 44% had received

at least some contribution to their programs for HI/MR residents from nearby colleges and universities.

Finally, while facility self-evaluations and suggestions for research and training were not formally analyzed, a broad range of concerns were voiced by respondents, all of which suggest directions for future efforts on behalf of the hearing impaired. Many concerns centered around diagnosis, optimal resident groupings, communication methods, and staff training.

Recommendations

We hope that the reader has by now noticed at least some of the HI/MR Survey's implications for practitioners in hearing impairment and mental retardation. In this section, we want to draw out the implications that we, as researchers, see in the data, make several recommendations which might facilitate programming for the HI/MR person, and identify research and training needs. We will place special emphasis on gaps in service and obstacles to service improvement.

1. *Identification of the HI/MR Person.* We cannot overemphasize the difficulties which presently plague diagnosis of hearing impairment among the mentally retarded and which prohibit accurate assessment of the scope of the problem. Part of the variability in estimates of the size of the HI/MR population in the present study can be attributed to error--that is, to the fact (1) that respondents often made approximations rather than taking censuses, (2) that a large segment of the sample did not provide complete population figures, and (3) that respondents to mail surveys, like all humans, err. These types of error, however, do not explain the wide variability among incidence figures presented by different researchers over the years. Far more important in explaining these differences, and a far more pressing deficiency in current procedures, is the lack of standardization in diagnostic procedures.

This problem is not nearly as critical for the DEAF/MR as it is for the HOH/MR. Respondents to the HI/MR Survey and diagnosticians in general seem to have reached some consensus as to what constitutes deafness. Consensus as to what constitutes hearing impairment, however, simply does not exist.

What can be done to remedy this situation? In one sense, public institutions for the retarded seem to be on the right track in that many use several audiometric techniques rather than relying on any single technique. Beyond this, however, we recommend considering both audiometric test results and functional need. A person whose audiological test results indicate hearing loss may not require special programming, particularly if the hearing loss is restricted to one ear.

What is truly important is developing ways of distinguishing those hearing impaired residents who would benefit from special programming from those whose hearing loss does not constitute a significant disability in everyday functioning.

Relying more on the criterion of functional need is no cure-all, however. The whole concept of functional need must be clarified and objectified. As things stand now, the concept is nebulous, and functional need is assessed subjectively.

Audiometric technology should also be reevaluated by speech and hearing specialists. The critical problem is the fact that so many persons prove difficult to test, particularly when standard puretone audiometry is used. Several new techniques offer promise. As we have shown, operant and stimulus-response audiology have already proved to be useful tools for speech and hearing assessment in institutions for the retarded, largely because they elicit maximal performance from the persons tested. Two newer techniques, while not presently used in many institutions, offer even more promise because they permit testing of persons who are unwilling or unable to make vocal or motor responses. Acoustic impedance measurement (Lamb & Norris, 1969), which taps acoustic impedance in the middle ear through use of either a mechanical or an electroacoustic impedance bridge, is one option which has been shown to be effective. The electroacoustic bridge seems superior in evaluating difficult-to-test persons because it does not require as much cooperation as the mechanical bridge and because it is adaptable to either absolute or relative impedance measurement. It is also inexpensive enough that it could be used within an institution.

Cortical-evoked response audiometry (Price, 1969), although it is presently less well researched than acoustic impedance audiometry, also offers great potential for testing difficult-to-test subjects. With electrodes attached to the scalp, changes in brain waves in response to auditory stimulation can be measured without the need for the person tested to respond voluntarily in any fashion. Unfortunately, the equipment needed for cortical-evoked response audiometry is so expensive that very few institutions could afford their own units. The most practical approach would be launching a collaborative effort in a single state or region to obtain the equipment and house it at some centrally-located site--for example, at a university medical school, or at one of the state institutions for the retarded. Such innovative audiometry techniques are necessary if the difficult-to-test child or adult is to be assessed properly. At present, it is not always certain whether such persons are difficult-to-test for auditory or nonauditory reasons. It is almost

impossible to judge the incidence of hearing impairment among the profoundly and severely retarded with conventional techniques.

Another area of difficulty in diagnosis is the fact that criteria of hearing loss vary, even when a standard technique such as puretone audiometry is used. Presumably, even if innovative audiometric techniques were introduced, there would still be problems in deciding what test results mean in terms of program prescriptions. If standard criteria of hearing impairment are to be developed, it is probably up to those who work with HI/MR residents in state institutions for the retarded to do so. For example, the National Association of Superintendents of Public Residential Facilities for the Mentally Retarded, in collaboration with the American Speech and Hearing Association, might direct the setting of standards, drawing on the expertise of speech and hearing specialists from around the country. The current lack of standardization, as we have noted, prohibits accurate assessment of the extent of hearing impairment among the mentally retarded. More significantly, it blocks communication and collaboration among personnel working with HI/MR residents. Although two institutions may both develop well-structured programs for the hearing impaired, their staffs may have quite different understandings of what constitutes hearing impairment and what hearing impaired residents need most. Standardization will not be an easy task, particularly if several different audiometric techniques are to be used conjointly. However, such standardization, if it could be accomplished, would greatly ease the task of program planning.

The HI/MR Survey also suggests that there is a need for standardization in the time table by which audiometric evaluations are conducted. As a first step, we would recommend that hearing examinations be given as part of standard admission procedure in the sizable number of institutions (40% of the sample) which do not presently give them. It would also be beneficial if the speech and hearing specialist had the means to conduct hearing examinations of the residents presently in the institution, devoting special attention to those who are difficult-to-test. Finally, we would suggest that residents identified as hearing impaired be reevaluated yearly with a battery of audiometric tests and a hearing aid evaluation.

Until consensus is reached regarding criteria of hearing impairment, the speech and hearing specialist can only attempt to conduct thorough and periodic evaluations of residents using the most sophisticated procedures available, attempting to use criteria which appear to have more widespread acceptance than others, and carefully documenting the procedures actually selected.

2. *Educational Programming*. One of the most significant findings of the HI/MR Survey is that HI/MR children and adults represent a substantial subpopulation in institutions for the mentally retarded. The HI/MR resident needs special attention to develop his or her full potential.

Programming for the HI/MR resident should be based on an understanding of the characteristics of the HI/MR population. In light of the HI/MR Survey results, program planners should recognize that HI/MR residents are likely to be adults who are severely or profoundly retarded. However, we must also recognize that HI/MR residents vary widely in terms of extent of hearing impairment, age, and intelligence, and cannot be treated as a homogenious group.

At present, most HI/MR residents are not receiving special programming; rather, they are an invisible group within institutions, receiving services which are appropriate to hearing residents of the same general level of intellectual functioning. Slightly over half of the repondents do not perceive their institutions as offering "distinct" programs for DEAF/MR or HOH/MR residents. This, we believe, is a situation which should be remedied. Once hearing impaired residents are identified, they should be placed in special programs. They should have access to classroom instruction under the direction of a teacher grounded in both hearing impairment and mental retardation. They should have access to a planned sequence of hearing therapies. Our findings suggest that hearing therapies are presently a strong element of institutional programming for the HI/MR resident, and that the average institution offers a variety of such special therapy programs. With respect to classroom instruction, however, we discovered no clear standard as to hours spent in the classroom daily. On the whole, classroom instruction did not appear to affect most HI/MR residents for sizable portions of the day. Greater classrooom involvement for those students who can benefit from it should become a priority.

Unfortunately, most classroom instruction for the mentally retarded ends when a resident reaches the age of eighteen. Two-thirds of the HI/MR residents in institutions today are over the age of eighteen. Moreover, they are generally severely and profoundly retarded. In view of these findings, there is obviously a need for new and more flexible roles for teachers of the HI/MR. One option is activity programs which are structured with the aid of deaf educators to offer special training in communication. Another option is a stronger emphasis on behavior modification of communication skills. If teachers of the hearing impaired in facilities for the mentally retarded are to meet the needs of the HI/MR resident, they have to extend their roles beyond the four walls of a classroom.

To do this, teachers need help. This help must originate with administrators. In some programs, teacher aides, under the guidance of a teacher, are used effectively to extend training programs to the dormitory and to make education an activity which pervades life from wakeup until bedtime. Teacher aides can work with individual HI/MR students or with small groups to reinforce classroom learning and to introduce new material. The administrator's role is to provide the funding for a strong teacher aide program.

For a program to truly touch all aspects of the resident's life, however, cottage personnel must be incorporated into the master plan. As we have noted, very few institutions cluster HI/MR residents in separate living facilities or units on campus. Although 59% of the institutions offer specialized training for staff members working with HI/MR residents, we suspect that very little training is directed at cottage personnel. Intensive training of cottage personnel is, in fact, impractical as long as HI/MR residents are dispersed across campus. Through cottage personnel, the teacher can extend his or her impact, primarily by designing activities to be conducted at the cottage which will reinforce classroom learning.

A critical problem in most institutions for the retarded, as well as institutions for the deaf, is coordinating the educational program with the dormitory program. The HI/MR Survey suggests that most HI/MR residents spend relatively little time in instruction and therapy. Since training of cottage personnel is minimal, we conclude that HI/MR residents are not receiving special help with their disability during the bulk of the day.

Communication Methods. At present, methods of communication with HI/MR residents are varied. Most institutions use more than one communication method, but procedures for integrating communication methods in a total communication program are lacking. Approximately 50% of the facilities indicated that they used total communication with HOH/MR or DEAF/MR residents. Sign language appeared to be relatively scarce; in fact, only 30% of the respondents indicated that they use sign language with DEAF/MR residents, who would profit most from some form of manual communication.

In view of evidence cited by Vernon (1970), it would seem that the introduction of manual communication early in life has merit. We are not advocating exclusive use of manual communication, but our findings do suggest that manual communication is not widely enough used in institutions for the mentally retarded.

The debate between those who favor oral communication and those who favor manual communication has raged for years among deaf educators. Unfortunately, the dialogue has often

degenerated into an "either-or" issue, with some arguing for exclusive use of oral communication, and others--often those who espouse the concept of total communication--actually advocating exclusive use of manual communication.

Total Communication is presumably an eclectic approach which makes flexible use of variety of communication methods. In order for a true total communication approach to be implemented, manual communication methods must be strengthened. A few institutions for the mentally retarded, finding American Sign Language too complex for their residents, have developed their own simplified sign languages. While this signifies great concern for the hearing impaired, it would surely be more efficient if a standard sign language appropriate for the mentally retarded could be developed and used across the country. Special funding might be necessary if such a manual language were to be developed and tested.

If manual language is to become part of the daily life of HI/MR residents, such residents must be grouped in separate living facilities, or at least clustered in one portion of the campus. Not only would this permit residents to use manual communication skills in interacting with one another, but it would also permit intensive training of cottage personnel in total communication. The attendant could then become an important teacher in the resident's life, and the hours after class or after activity programs would not need to be wasted.

4. *Needs for Equipment*. Individual hearing aids, according to our respondents, are provided for only a minority of the HI/MR residents. Furthermore, most respondents reported that residents have difficulty caring for hearing aids. Of course, it is possible that few residents have aids because they lose them, destroy them, or refuse to wear them. Still, the situation could be remedied--and should be. Some would argue that hearing aids are beneficial not only to the HOH/MR person but also to the DEAF/MR person who may be able to detect speech patterns with residual hearing which otherwise would be lost. Too often, hearing aids are used in special programs or in the classroom and are then retired to a drawer when the resident returns to the dormitory. First, all staff working with HI/MR residents should be convinced of the value of hearing aids. Secondly, administrators should act to find funds for hearing aids. The problem of breakage can be solved technologically through the suspension of hearing aids in unbreakable plastic.

The problem of wear and care must be approached through a program of training and supervision. There is clearly a need for a behavior modification program designed to help residents adjust to wearing hearing aids and caring for them properly. In one institution described earlier, problems

with hearing aids were reduced considerably when a special staff member was assigned to supervise residents with aids. If such a staff person could not be designated, it could become the responsibility of cottage personnel--after appropriate training--to monitor residents who use hearing aids and refer those in need of training or retraining by behavior modification techniques to an appropriate trainer. Once the benefits of hearing aids are clear to all, the problems of purchasing them and insuring their proper use can be overcome.

A similar argument applies to the use of group auditory training units, which were reportedly available in only 35% of the institutions surveyed. Our observations suggest that even when such units are available, they are not used to the extent that they could be by teachers of the hearing impaired. Such units can be tuned for each individual so that they are as strong as individual hearing aids. In many ways, such units are superior to individual aids because they transmit a strong signal which is not confused with the background noise typically picked up by most individual aids. Group auditory training units are one way to capitalize on the residual hearing of the deaf student and to open the way to improve oral communication skills.

5. *Vocational Programming and Additional Services.* For adult HI/MR residents with potential for community placement or sheltered work activity, vocationally-oriented training programs should be expanded. At present, it appears that relatively little is being done to foster the vocational adjustment of the HI/MR resident. Most institutions do not offer a great deal more than prevocational instruction. Most notably, very few HI/MR residents are served by vocational rehabilitation agencies.

The burden of responsibility falls on both the institution and the vocational rehabilitation agency. The institution should work to include capable HI/MR residents in existing vocational programs on campus and to develop new programs appropriate to resident needs. Roughly two-thirds of the institutions already have sheltered workshops, though we do not know how many HI/MR residents actually participate in these programs. If the HI/MR resident is to fully benefit from vocational programming, however, he or she may need special attention. For example, at least one person on the workshop staff should be trained to work with the hearing impaired; and/or a teacher of the deaf should be involved in helping HI/MR clients in the workshop on a periodic basis. We believe that it would not require a great deal of extra effort to open the way for more HI/MR clients in vocational programs.

The burden of responsibility also falls on the vocational rehabilitation agency. Although it remains to be

seen what happens in practice, the new Vocational Rehabilitation Act mandates special attention to the severely and multiply disabled--to those persons who, in the past, have not been regarded as eligible for vocational rehabilitation services. The new Act also broadens the mission of vocational rehabilitation agencies so that a person need not have clear potential for employment to be accepted for services. Hopefully, this trend will continue and will be backed by additional funds, inducing vocational rehabilitators to consider working with the institutionalized, multiply disabled mentally retarded. Institutions can speed the process by developing working relationships with vocational rehabilitators and convincing them of the potential of HI/MR residents. While a large number of HI/MR residents would not be eligible for vocational rehabilitation services, even as they are now conceived, those who could profit from them should be identified by the institution and brought to the attention of the local vocational rehabilitation agency.

Along with an increased emphasis on vocational training should come an emphasis on community residential facilities and foster homes. Our findings do not indicate how many HI/MR residents actually benefit from the group homes which are reportedly available to slightly less than half of the facilities. Our impression is that residents in the mild and moderate ranges of retardation without additional disabilities are typically the first candidates for community residential programs and independent placement. There is no reason why the mildly or moderately retarded HI/MR resident cannot benefit from these placements as well--and be able to hold a job in the community because of the support that such facilities provide. In larger institutions, it might even be possible to establish a special community facility for HI/MR residents, supervised by a deaf person or by someone trained in hearing impairment. Alternatively, hearing impaired persons in the community might be recruited as citizen advocates to help the HI/MR person adjust to the special problems of the hearing impaired in the community.

6. *Staff Considerations*. Although we were unable to draw firm conclusions from respondents' descriptions of staffing patterns, it was apparent that most facilities do not designate a team of personnel to work exclusively with HI/MR residents. If the needs of the HI/MR resident are to be met, staffing and staff training must become a priority.

It was clear that very few facilities have teachers with dual training in hearing impairment and mental retardation. This shortage is easily enough explained: almost none of the colleges and universities in the country offer such training. We are witnessing a greater emphasis in

teacher education on the multiply disabled child, but college and university programs have a long way to go. They should provide students with flexible programs which allow them to understand multiple disability in general and then specialize in a dual impairment. Institution administrators can communicate their need for teachers of the multiply handicapped not only to universities but also to state departments of education, fostering the notion that institutions for the retarded can offer many of the same programs which public schools are now being encouraged to offer for multiply handicapped students. They can also document their needs for teachers of the hearing impaired.

Given the present shortage of qualified teachers attuned to the special problems of HI/MR residents, wise use of supportive personnel is essential. One teacher of the hearing impaired can extend his or her influence through teacher aides, particularly if the aides are heavily involved in tutorial and small group work with residents rather than being restricted to clerical tasks. And, as we have already suggested, cottage personnel--often an untapped natural resource--can and should be trained to be trainers.

As a first step, the audiometrist at an institution can help cottage parents to understand HI/MR residents--for example, by pointing out that DEAF/MR residents may hear noise even though they do not understand speech and that what sometimes appears to be stubbornness or selective listening is actually a simple fact of hearing impairment. Cottage parents should also be informed of the importance of hearing aids and trained to monitor hearing aid use and care. The teacher or activity program supervisor should work closely with cottage parents, keeping them abreast of what is being taught and asking them to conduct activities which will reinforce learning and help residents to transfer skills to daily life. Conversely, the cottage parents should communicate their observations of residents to educators.

If HI/MR residents are dispersed across campus, perhaps the most that can be done is to include a brief orientation to hearing impairment in general in-service training, encourage cottage personnel to monitor hearing aid wear and care, and involve them in "homework" activities. If HI/MR residents are clustered in units on campus, far more can be accomplished. Cottage parents involved with HI/MR residents can then receive extensive training, including training in a sign language, and can have daily interactions with teachers, teacher aides, and program supervisors.

7. *Research and Training Needs*. The HI/MR Survey results are part of an increasingly large body of information about the Hearing Impaired/Mentally Retarded. We hope that they will alert practitioners to the size of the problem and

the current status of programs for HI/MR residents. However, several of our survey respondents who were deeply involved in programming for HI/MR residents identified many topics which still need to be studied by researchers. Much more must be done to describe characteristics and specific needs of HI/MR persons as a base for program planning. Systematic comparisons of different approaches to communication, including simplified sign languages, should be made. The merits of clustering HI/MR residents versus dispersing them across campus should be assessed. Vocational training which takes into account the special needs of the HI/MR client should be evaluated.

Fewer than half of our respondents said that they have relationships with nearby colleges and universities. Universities could be more heavily involved in research on HI/MR residents. The institution might even suggest researchable questions to interested parties in education, speech, and psychology departments and facilitate their research efforts.

Colleges and universities might also play a stronger role in staff development. As we have noted, they should attempt to develop strong teacher education programs in dual handicaps, and their students should be more involved in student teaching and other learning experiences at institutions for the retarded. A strong linkage between the institution and nearby universities can do much to strengthen programming for the HI/MR resident.

Finally, we perceive, and a few of our respondents perceived, a need for more sharing of information about HI/MR persons and programs for them. Too many times, personnel working with HI/MR residents reinvent the wheel, unaware that others across the country are tackling the same problems. Those concerned with HI/MR residents should work to develop informal and formal associations with one another--through correspondence, professional meetings, site visits, and so on. Further research on programming might speed the communication process. A logical sequel to the HI/MR Survey would be an intensive descriptive study of current methods, materials, and organizational patterns in programs for HI/MR persons. Such a study would be valuable to the extent that it gives practitioners access to materials and methods which they would not have otherwise.

It is our hope that the present report will at least alert practitioners to the steps which lie ahead in improving services for the Hearing Impaired/Mentally Retarded.

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APPENDIX A:

HI/MR
SURVEY FORM

PLEASE READ CAREFULLY----------

Read through the entire questionnaire before answering.

You will note that the survey is divided into three major categories--(1) HARD OF HEARING/Mentally Retarded, (2) DEAF/Mentally Retarded, and (3) HARD OF HEARING/Mentally Retarded and/or DEAF/Mentally Retarded.

For clearity, these divisions are found on contrasting color paper.

Answer fully. If exact information regarding your program, parts or whole, is not available, give your best estimate and so indicate.

Return the completed survey to:

Dr. Gerard J. Bensberg, Director
Research and Training Center in
Mental Retardation
Texas Tech University
P. O. Box 4510
Lubbock, Texas 79409

Thank you.

A SURVEY OF HARD OF HEARING/MENTALLY RETARDED AND DEAF/MENTALLY RETARDED IN RESIDENTIAL FACILITIES

I. IDENTIFICATION Information

Name of Institution

Address ( ) Telephone

Name of Person Completing This Form Title or Position

II. TOTAL Population Characteristics

Indicate TOTAL number (Average Daily Census) of persons served by reporting facility by age and intelligence level.

	Age in Years						
Intelligence Levels (IQ)	Under 6	6-12	13-18	19-39	40-60	Over 60	Age Unknown
Borderline (84-70)							
Mild (69-55)							
Moderate (54-40)							
Severe (39-20)							
Profound (19-0)							
Unknown							

The above figures indicate: ___ Average Census

(Check One) ___ Present Census

___ Approximate Census

III. PROCEDURES for Serving HARD OF HEARING Mentally Retarded and/or DEAF Mentally Retarded Residents

A. Is a hearing examination for the mentally retarded part of your facility's standard admission procedure?

___ YES ___ NO

B. If you do give hearing examinations at admission, do you use operant and/or stimulus-response conditioning audiology?

___ YES ___ NO

C. What types of audiological evaluations are given?

___ Pure Tone ___ Screening

___ Sound Field ___ Other (Specify)

___ Speech

D. What is your primary criterion for classifying a resident as HARD OF HEARING or DEAF?

Puretone Audiometry Results	Functional Need of the Resident	Other Criteria (Specify)
_____	_____	_____

(Indicate Minimum Hearing Loss In Decibels or Percentage)

Comments:

E. Are HARD OF HEARING/Mentally Retarded and DEAF/Mentally Retarded residents periodically re-evaluated as standard procedure?

___ YES ___ NO

How often are these residents re-evaluated? _____

III. PROCEDURES For Serving HARD OF HEARING/Mentally Retarded and/or DEAF/Mentally Retarded Residents (Continued)

In what areas are these residents re-evaluated?

Comments:

___ Speech
___ Language
___ Audiological
___ Psychological
___ Medical
___ Hearing Aid
___ Other (Specify)

F. Does your facility have a distinct program for the education of the:

___ Hard of Hearing

___ Deaf

___ Deaf and Hard of Hearing in a combined setting

Comments:

G. Is a speech and language evaluation part of your facilities admission procedures?

_____ YES ____ NO

H. Are the following otological services available to your residents?

___ Medical examination and referral

___ Complete diagnosis

___ Surgical and other treatment

IV. HARD OF HEARING/Mentally Retarded Population Characteristics

PLEASE NOTE---For the purpose of this survey a HARD OF HEARING person is defined functionally as a person who has a hearing loss but can use residual hearing to understand speech (with a hearing aid if necessary). This HARD OF HEARING person may use oral receptive and expressive language as the primary means of communication.

If the above differs appreciably from your facility's definition, please explain.

Indicate number (Average Daily Census) of HARD OF HEARING/Mentally Retarded persons served by reporting facility by age and intelligence level.

	Age in Years					
Intelligence Levels (IQ)	Under 6	6-12	13-18	19-39	40-60	Age Unknown
Borderline (84-70)						
Mild (69-55)						
Moderate (54-40)						
Severe (39-20)						
Profound (19-0)						
Unknown						

The above figures indicate: ___ Average Census

(Check one) ___ Present Census

___ Approximate Census

V. SERVICES for the HARD OF HEARING/Mentally Retarded

A. For those residents capable of participating in a learning situation, what is the average number of clock hours per day that the individual HARD OF HEARING/Mentally Retarded resident spends in a special (i.e. classroom, tutorial, therapy) instructional setting?

_____ Hours

B. For those residents <u>not</u> capable of participating in a formalized learning situation, what programs do you have?

C. What is the average pupil/teacher ratio in your facility's HARD OF HEARING program?

_____ residents to _____ teachers

D. Is tutorial instruction available for the HARD OF HEARING/Mentally Retarded?

_____ YES _____ NO

Comments:

E. Indicate the primary method of communication used with the HARD OF HEARING/Mentally Retarded.

_____ Oral

_____ Fingerspelling

_____ American Standard Language of Signs

_____ Total Communication

_____ Other (Specify)

Comments:

V. SERVICES for the HARD OF HEARING/Mentally Retarded (Continued)

F. What types of specialized hearing therapy are offered to the HARD OF HEARING/Mentally Retarded?

_____ Auditory Training
_____ Speechreading
_____ Speech Thearapy
_____ Hearing Aid Orientation
_____ Language Training
_____ Other (Specify)

Comments:

G. Are the living arrangements for the HARD OF HEARING/Mentally Retarded separate from the hearing mentally retarded?

_____ YES _____ NO

H. Are the living arrangements for the HARD OF HEARING/Mentally Retarded separate from the DEAF/Mentally Retarded?

_____ YES _____ NO

I. What additional services are available to the HARD OF HEARING/Mentally Retarded at your facility? Indicate whether the institution, the community, or a related agency takes primary responsibility for each of these services.

_____ Sheltered Workshops
_____ Foster Homes
_____ Group Homes
_____ Volunteers
_____ Community Programs
_____ Other (Specify)

Comments:

V. SERVICES for the HARD OF HEARING/Mentally Retarded (Continued)

J. Describe any Vocational Rehabiliation services available to the HARD OF HEARING/Mentally Retarded at your facility.

_____ Special Rehabiliation Counselor

_____ Pre-Vocational . . ruction

_____ Work-Study Program

_____ Other (Specify)

Comments:

How many HARD OF HEARING/Mentally Retarded persons are served by Vocational Rehabiliation?

_____

What is the age range of the HARD OF HEARING/Mentally Retarded residents served by Vocational Rehabiliation?

_____ to _____

VI. DEAF Mentally Retarded Population Characteristics

PLEASE NOTE--- For the purpose of this survey a DEAF person is defined functionally as a person with a severe hearing loss who cannot hear or understand speech even with a hearing aid. This DEAF persón may use some form of manual receptive and expressive language as the primary means of communication.

If the above differs appreciably from your facility's definition, please explain.

Indicate number (Average Daily Census) of DEAF Mentally Retarded persons served by reporting facility by age and intelligence level.

	Age In Years						
Intelligence Levels (IQ)	Under 6	6-12	12-18	19-39	40-60	Over 60	Age Unknown
Borderline (84-70)							
Mild (69-55)							
Moderate (54-40)							
Severe (39-20)							
Profound (19-0)							
Unknown							

The above figures indicate: ___ Average Census

(Check One) ___ Present Census

___ Approximate Census

VII. SERVICES for the DEAF/Mentally Retarded

A. For those residents capable of participating in a learning situation, what is the average number of clock hours per day that the individual DEAF/Mentally Retarded resident spends in a special (i.e. classroom, tutorial, therapy) instructional setting?

_____ Hours

B. For those residents not capable of participating in a formalized learning situation, what programs do you have?

C. What is the average pupil/teacher ratio in your facility's DEAF program?

_____ residents to ___ teachers

D. Is tutorial instruction available for the DEAF/Mentally Retarded?

_____ YES _____ NO

Comments:

E. Indicate the primary method of communication used with the DEAF/Mentally Retarded.

_____ Oral

_____ Fingerspelling

_____ American Standard Language of Signs

_____ Total Communication

_____ Other (Specify)

Comments:

VII. SERVICES for the DEAF/Mentally Retarded (Continued)

F. What types of specialized hearing therapy are offered to the DEAF/Mentally Retarded?

_____ Auditory Training
_____ Speechreading
_____ Speech Therapy
_____ Hearing Aid Orientation
_____ Language Training
_____ Other (Specify)

Comments:

G. Are the living arrangements for the DEAF/Mentally Retarded separate from the hearing mentally retarded?

_____ YES _____ NO

H. What additional services are available to the DEAF/Mentally Retarded at your facility? Indicate whether the institution, the community, or a related agency takes primary responsibility for each of these services.

_____ Sheltered Workshops
_____ Foster Homes
_____ Group Homes
_____ Volunteers
_____ Community Programs
_____ Other (Specify)

Comments:

VII. SERVICES for the DEAF/Mentally Retarded (Continued)

J. Describe any Vocational Rehabilitation services available to the DEAF/Mentally Retarded at your facility.

_____ Special Rehabilitation Counselor

_____ Pre-Vocational Instruction

_____ Work-Study Program

_____ Other (Specify)

Comments:

How many DEAF/Mentally Retarded persons are served by Vocational Rehabilitation?

____

What is the age range of the DEAF/Mentally Retarded residents served by Vocational Rehabilitation?

_____ to _____

VIII. STAFF TRAINING

A. Indicate TOTAL NUMBER of staff primarily serving the facility's HARD OF HEARING/Mentally Retarded and/or DEAF/Mentally Retarded.

	Academic Training and Certification					
Faculty and Staff Disciplines	Non-Degree	Bachelors	Masters	Doctoral	Professionally Certified	State Credential
Teacher of MR						
Teachers of Deaf						
Teachers of Deaf/MR						
Speech Pathologist						
Audiologist						
Supervisory Staff						
Attendants						
Teacher or Therapy Aides						
Other (Specify)						

Comments:

B. Does your facility provide specialized in-service orientation and/or training for staff members working with the HARD OF HEARING/Mentally Retarded and/or the DEAF/Mentally Retarded?

_____ YES _____ NO

Comments:

C. Are any colleges or universities involved in services for your HARD OF HEARING/Mentally Retarded and/or DEAF/Mentally Retarded?

_____ YES _____ NO

VIII. STAFF TRAINING (Continued)

If any colleges or universities are involved with your program, what is the nature of their involvement?

Name of college or university _____

_____

_____

Services Provided by above colleges or universities

_____ Research

_____ Training

_____ Practicum

_____ Consultation

_____ Other (Specify)

Comments:

IX. SPECIAL EQUIPMENT for HARD OF HEARING/Mentally Retarded and/or Deaf/Mentally Retarded Residents

A. Please state the number of HARD OF HEARING/Mentally Retarded and/or DEAF/Mentally Retarded with individually prescribed hearing aids.

_____ Number of individual hearing aids.

B. Do your HARD OF HEARING/Mentally Retarded and/or DEAF/Mentally Retarded residents experience difficulty in caring for their individual hearing aids?

_____ YES _____ NO

C. How many residents actually wear their individually prescribed hearing aid?

_____ Number of residents wearing hearing aids

IX. SPECIAL EQUIPMENT for HARD OF HEARING/Mentally Retarded and/or DEAF/Mentally Retarded Residents (Continued)

D. Indicate the number of school rooms equipped with a group auditory training unit (i.e. group hearing aid).

_____ Number of group auditory training units

Comments:

E. Is a sound-proof audiological testing booth available to your facility?

_____ YES _____ NO

Comments:

X. Facility's SELF-EVALUATION

A. Describe services for the HARD OF HEARING/Mentally Retarded and/or DEAF/Mentally Retarded which you consider adequate or superior (i.e. specialized procedures; grouping, teaching methods, equipment, staff).

B. Describe services for the HARD OF HEARING/Mentally Retarded and/or DEAF/Mentally Retarded you consider inadequate (i.e. staff training, physical facilities, materials, staff).

X. Facility's SELF-EVALUATION (Continued)

C. Recommendations for Agency or University Projects involving future work with the HARD OF HEARING/Mentally Retarded and/or DEAF/Mentally Retarded.

1. What would your facility like to know about this special group that might be gained through RESEARCH?

2. What directions might the TRAINING aspect take that would be of benefit to your facility?

3. What SERVICES might be provided to assist your facility in this specialized area?

4. Please state any additional comments that you deem pertinant.

APPENDIX B.

SUPPLEMENTARY TABLES

Table B1.

Age and Intelligence Level Distribution of Mentally Retarded Persons Served by Participating State Facilities, 1973.

Intelligence Levels (IQ)	Age in Years: Under 6	6-12	13-18	19-39	40-60	Over 60	Not Reported	Total
Borderline (84-70)	17	141	501	1,106	616	295	166	2,842
Mild (69-55)	32	683	2,315	3,907	2,215	849	689	10,690
Moderate (54-40)	116	1,484	3,754	7,374	4,044	1,130	1,428	19,330
Severe (39-20)	485	3,191	5,232	11,229	6,117	1,644	2,774	30,672
Profound (19-0)	708	4,499	7,481	15,192	5,499	1,465	2,371	37,215
Not Reported	208	726	832	1,322	560	146	16,083	19,877
Total	1,566	10,724	20,115	40,130	19,051	5,529	23,511	120,626

The above figures indicate approximate census.

Table B2.

Age and Intelligence Level Distribution of MOH/MR Persons Served by Participating State Facilities, 1973.

Intelligence Levels (IQ)	Age in Years: Under 6	6-12	13-18	19-39	40-60	Over 60	Not Reported	Total
Borderline (84-70)	0	7	33	67	76	29	0	212
Mild (69-55)	0	34	142	284	260	32	5	757
Moderate (54-40)	9	115	269	776	4888	30	8	1,695
Severe (39-20)	29	243	412	896	673	77	12	2,342
Profound (19-0)	61	490	480	955	543	63	11	2,603
Not Reported	17	18	29	52	33	11	603	763
Total	116	907	1,365	3,030	2,073	242	639	8,372

The above figures indicate approximate census.

Table B3.

Age and Intelligence Level Distribution of DEAF/MR Persons Served by Participating State Facilities, 1973.

Intelligence Levels (IQ)	Age in Years: Under 6	6-12	13-18	19-39	40-60	Over 60	Not Reported	Total
Borderline (84-70)	1	6	21	43	23	9	1	104
Mild (69-55)	1	23	77	77	60	10	1	249
Moderate (54-40)	1	50	131	242	91	33	0	548
Severe (39-20)	11	124	134	282	146	36	0	733
Profound (19-0)	33	186	186	285	137	30	0	857
Not Reported	6	12	17	23	13	8	73	152
Total	53	401	566	952	470	126	75	2,643

The above figures indicate approximate census.